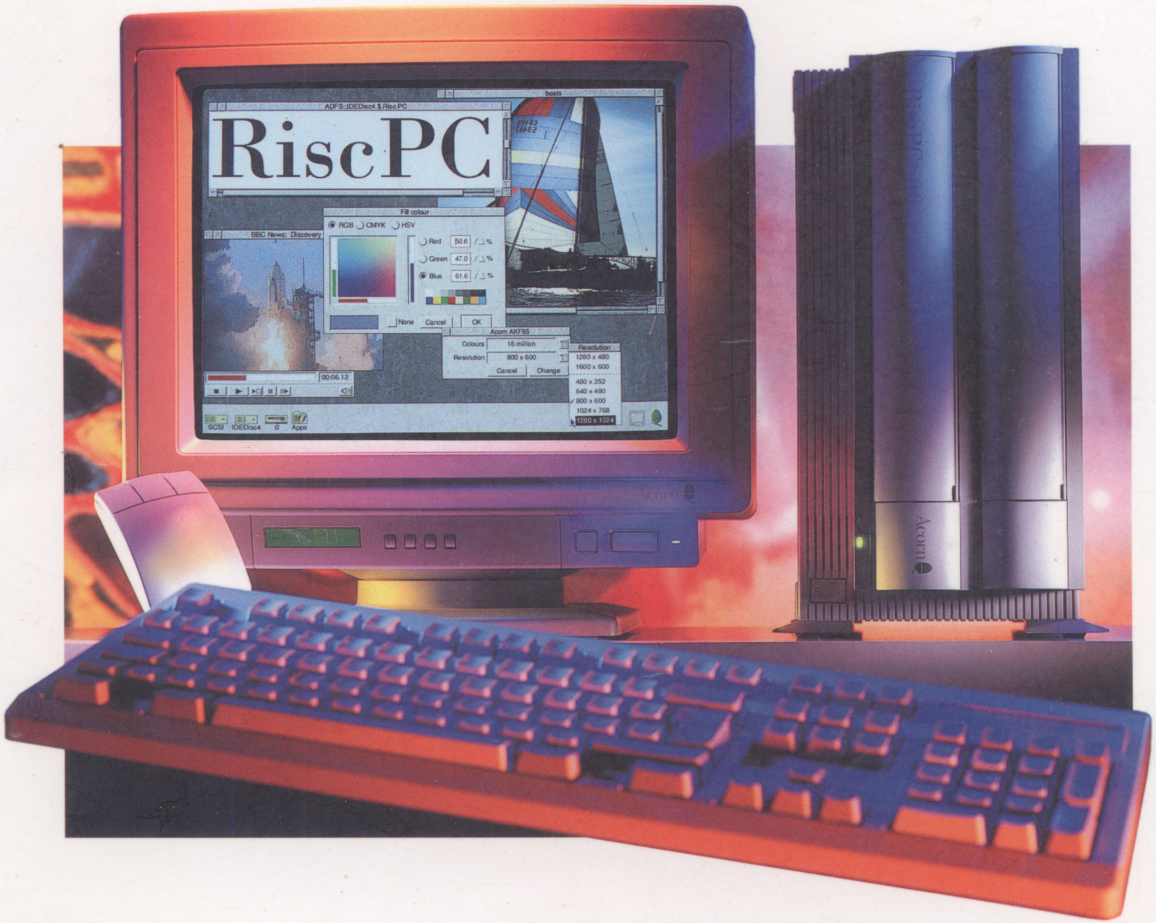
Acorn Risc PC
Welcome Guide



Acorn

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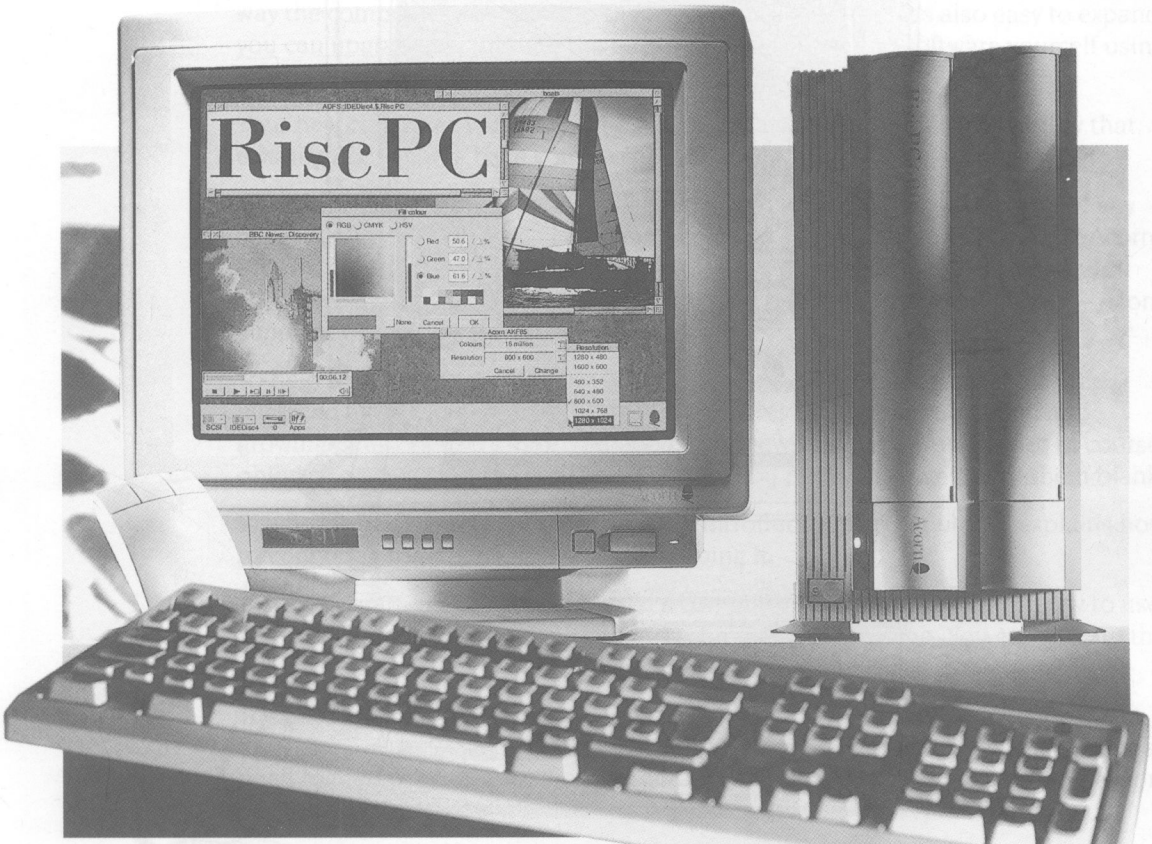

Acorn

Welcome to the Acorn Risc PC range of computers!

The Acorn Risc PC is the first of a new generation of Acorn computers. It is the result of a lengthy research and development investment program by Acorn. This computer offers our fastest RISC performance yet and we've improved the display capabilities as well; you can now display up to 16 million different colours.

The computer also shows the results of our commitment to ease of use, from the way the computer case opens to the new RISC OS desktop. It's also easy to expand; you can upgrade and update the computer's hardware and software yourself using standard upgrades available from your supplier.

Your new computer is made to the high standards of quality and reliability that existing Acorn users have come to expect.

We value your comments and feedback, so please let your supplier know of any suggestions you have as to how we might improve our service to you – the Acorn Risc PC incorporates many such suggestions. Your supplier will also assist you should you ever feel dissatisfied with any aspect of our product or service – Acorn suppliers have full support from Acorn itself.

To help us provide you with the best service, please complete and return the enclosed Owner Registration Form. This enables us to keep our valued and growing family of users informed about new developments. You are not of course obliged to answer all the questions, should you prefer to leave any of them blank.

The first part of this guide, *Getting started*, introduces the computer; it explains how to connect it together and how to start using it.

It doesn't matter if you've never used a computer before, the system is easy to use, and you need learn only a few simple techniques to get going. You can pick up the details as you go along.

The sections *More about your computer* and *Inside the computer* give you advice about looking after your computer, along with more detailed information which you may need to refer to when you want to add things like expansion, memory and network cards.

Once you have set everything up and mastered the basic techniques described in this guide, the RISC OS 3 *User Guide*, also supplied, will help you to get the best out of your computer and answer many other questions you may have about how the computer works.

Sam Wauchope

Managing Director
Acorn Computers Limited

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If you have any comments on this manual, please complete the form at the back of the manual, and send it to the address given there.

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Guidelines for safe operation

GB

This product is not intended for use as a critical component in life support devices or any system in which failure could be expected to result in personal injury.

The equipment described in this guide is designed and manufactured to comply with international safety standards EN60950 (BS7002) and is intended for use only as a personal computer. It must not be used for other purposes. It is most important that installation and operation are carried out in accordance with the instructions given in this guide. In the interests of continued safe and reliable operation, observe the following guidelines:

Electrical safety

- **This equipment must be earthed (grounded) to prevent electrical shock hazard.**
- The equipment shall be installed near the power outlet, which shall be readily accessible.
- If the plug supplied is not suitable for the power supply in your country, please consult your supplier.
- Do not attempt to open any display or monitor, whether supplied with the equipment or not.
- Do not exceed the following maximum current/voltage ratings:

Mouse interface	80mA	
Keyboard interface	300mA	
Monitor interface	250mA	
Expansion cards	+5V	1A
(per card)	+12V	250mA
	-5V	10mA

- Do not operate this equipment if any cables are damaged.
- Switch off and unplug the equipment and any accessories before opening the unit (e.g. to install an upgrade).
- Switch off and unplug the equipment if you're not going to use it for a few days.

Installation

- This equipment is for indoor use only (in a dry and dust-free environment).
- Do not expose the equipment to sudden extremes in temperature, direct sunlight or other heat sources.
- You should attach the tower feet when using the computer in tower mode, in order to ensure that the ventilation slots are not obstructed.
- Stand equipment on a hard level surface, allowing enough space for air to circulate when in use.
- Locate the equipment in such a way that it does not present a hazard or interfere with other equipment.
- Do not stand equipment weighing more than 16kg (35lbs) on top of this equipment. It is recommended that heavier monitors are placed directly on the work surface.
- Ensure that any wires and cables are routed sensibly so that they cannot be snagged or tripped over. Don't tug or twist any wires or cables, or use them to hang or lift any of the units.
- The equipment should only be operated with the covers secured.
- Keep the machine at a room temperature of +5°C to +35°C (+41° to +95° Fahrenheit) and a relative humidity of 10% to 80% (non-condensing).
- Keep the plastic bags used in the packaging away from children and animals.
- Keep the original packaging in case you need to transport the computer.
- The computer is designed for desktop use only.

Precautions in use

- Do not spill liquid on the equipment. If you do, turn the equipment off immediately and take it to your supplier for assessment.
- Do not drop the equipment or subject it to excessive bumping and jarring.
- Do not obstruct, cover or poke objects into the equipment.

UK information

As the colours of the cores in the AC power lead of this equipment may not correspond to the coloured markings identifying the terminals in your plug, proceed as follows:

- The core which is coloured **green and yellow** must be connected to the terminal in the plug coloured green and yellow, or marked by the letter E or by the earth symbol ⏚ .
- The core which is coloured **blue** must be connected to the terminal coloured black or marked with the letter N.
- The core which is coloured **brown** must be connected to the terminal coloured red or marked with the letter L.

The mains lead supplied with the power supply unit is already fitted with a moulded plug incorporating a 5A fuse. If it does not fit your socket-outlet, the plug should be removed from the mains lead **and safely disposed of**. The flexible cord insulation should then be stripped back as appropriate. A suitable alternative plug should then be fitted. If the replacement plug is intended to take a fuse, then a 5A fuse must be used.

If you need to replace the fuse in the mains plug supplied, then you must use a 5A fuse, ASTA-approved to BS1362.

Never use mains plugs with the fuse carrier omitted. If you lose the fuse carrier, either replace it with a carrier of the same type and manufacturer or replace the moulded plug with another mains plug, wired as detailed above.

Information for Australia and New Zealand

This equipment should be fitted with a plug that complies with the requirements of AS3112-1990 and NZ SS 198-1967. If the plug fitted does not fit your socket outlet, it should be removed and disposed of. A suitable alternative plug should then be fitted, following the instructions provided with it.

As the colours of the cores in the mains cord of this equipment may not correspond to the coloured markings identifying the terminals in your plug, proceed as follows:

- The core which is coloured **green and yellow** must be connected to the terminal in the plug which is marked E or labelled green.
- The core which is coloured **blue** must be connected to the terminal which is marked N.
- The core which is coloured **brown** must be connected to the terminal which is marked P or A.

Never use an unapproved mains plug. In the event of damage to the mains plug, replace it with another approved to the above national standards (or one approved for your socket outlet) and wired as detailed above.

If in any doubt, please contact a qualified electrician able to complete the task for you.

Regeln zur Betriebssicherheit (Guidelines for safe operation)

D

Dieses Produkt ist nicht zur Verwendung als entscheidendes Bauteil in Lebenserhaltungsgeräten oder in Systemen, in denen ein Versagen zu Körperverletzungen führen könnte, gedacht.

Konstruktion und Verarbeitung des hier beschriebenen Geräts erfüllen die internationalen Sicherheitsnormen EN60950 (BS7002). Das Gerät ist ausschließlich zur Verwendung als Personalcomputer vorgesehen und darf zu keinem anderen Zweck eingesetzt werden. Bei Installation und Betrieb ist sorgfältig nach den hier gegebenen Anleitungen vorzugehen. Im Interesse eines dauerhaft sicheren und zuverlässigen Betriebs sind folgende Punkte zu beachten:

Elektrische Sicherheit

- Zum Ausschluß der Stromschlaggefahr das Gerät erden.
- Gerät in der Nähe einer gut zugänglichen Steckdose aufstellen.
- Den Händler benachrichtigen, falls der mitgelieferte Stecker nicht der nationalen Norm entspricht.
- Niemals einen Monitor oder ein Anzeigegerät zu öffnen versuchen.
- Folgende Nennstromstärken nicht überschreiten:

Mausschnittstelle	80 mA	
Tastaturschnittstelle	300 mA	
Monitorschnittstelle	250 mA	
Erweiterungskarten	+5 V	1 A
(pro Karte)	+12 V	250 mA
	-5 V	10 mA

- Nicht mit dem Gerät arbeiten, wenn ein Kabel beschädigt ist.
- Vor dem Öffnen des Gehäuses (z. B. beim Installieren eines Upgrades) den Computer und alle Peripheriegeräte ausschalten und den Netzstecker ziehen.
- Gerät ausschalten und den Netzstecker ziehen, wenn es einige Tage lang nicht benutzt wird.

Installation

- Gerät nur in geschlossenen (trockenen und staubfreien) Räumen verwenden.
- Gerät nicht plötzlichen starken Temperaturschwankungen, der direkten Sonneneinstrahlung oder anderen Hitzequellen aussetzen.
- Bei der Aufstellung des Computers als Turmversion die Turmfüße anbringen, damit die Lüftungsöffnungen nicht blockiert werden.
- Gerät auf einer harten, ebenen Unterlage aufstellen und genügend Raum für die Luftzirkulation während des Betriebs lassen.
- Gerät so aufstellen, daß es keine Gefahr darstellt und andere Geräte nicht stört.
- Keine über 16kg schweren Systemteile auf dieses Gerät setzen. Schwerere Monitore werden am besten direkt auf die Arbeitsfläche gestellt.
- Anschlußkabel und Leitungen so führen, daß man an ihnen nicht hängenbleiben oder über sie stolpern kann. An Kabeln und Leitungen nicht reißen oder ziehen oder mit ihnen Teile hochheben.
- Beim Arbeiten mit dem Gerät müssen die Gehäuseabdeckungen stets ordnungsgemäß festgeschraubt sein.
- Die Raumtemperatur muß sich zwischen +5°C und +35°C und die relative Luftfeuchtigkeit zwischen 10% und 80% (nicht kondensierend) bewegen.
- Plastikhüllen des Verpackungsmaterials von Kindern und Tieren fernhalten.
- Originalverpackung für einen eventuellen späteren Transport des Computers aufbewahren.
- Dieser Computer ist ausschließlich für den Einsatz als Tischcomputer gebaut.

Vorsichtsmaßnahmen bei der Verwendung

- Keine Flüssigkeiten mit dem Gerät in Berührung kommen lassen. Wenn Flüssigkeit verschüttet wird, Gerät sofort ausschalten und den Schaden vom Händler begutachten lassen.
- Gerät nicht fallenlassen und keinen übermäßigen Stößen und Erschütterungen aussetzen.
- Gerät nicht blockieren oder zudecken. Keine Gegenstände hineinstecken.

Instructions de sécurité (Guidelines for safe operation)

F

Ce produit n'a pas été conçu pour être utilisé comme composant fondamental d'équipement d'assistance médicale ou de tout système où un défaut pourrait être prévisible et occasionner des dommages physiques.

L'appareil décrit dans ce guide est conçu et fabriqué conformément aux normes de sécurité internationales EN60950 (BS 7002) pour faire l'objet d'un usage personnel. Il ne doit en aucun cas être utilisé à d'autres fins. Il est important de suivre les instructions d'installation et de fonctionnement données dans ce guide. Pour des raisons de fiabilité et de sécurité, respectez les instructions suivantes:

Sécurité électrique

- Cet appareil doit être mis à la terre afin d'éviter d'éventuels risques de chocs électriques.
- Cet appareil doit être installé près d'une prise de courant facile d'accès.
- Si la prise fournie ne convient pas à l'alimentation électrique de votre pays, veuillez consulter votre fournisseur.
- Ne tentez pas d'ouvrir écrans ou moniteurs fournis ou pas avec l'appareil.
- Ne dépassez pas les caractéristiques suivantes:

Interface souris	80mA	
Interface clavier	300mA	
Interface moniteur	250mA	
Cartes d'extension	+5V	1A
(par carte)	+12V	250mA
	-5V	10mA

- N'utilisez pas cet équipement si les câbles sont défectueux.
- Eteignez et débranchez votre appareil ainsi que tout accessoire avant d'ouvrir l'unité (pour installer une version plus puissante, par exemple).
- Eteignez et débranchez votre appareil si vous ne pensez pas l'utiliser pendant quelques jours.

Installation

- N'utilisez cet appareil que dans une salle (à l'abri de l'humidité et de la poussière).
- N'exposez pas cet appareil à des changements de température extrêmes, à la lumière directe ou autres sources de chaleur.
- Fixez les pieds de l'appareil lorsque vous utilisez votre ordinateur en mode "tour" afin de ne pas obstruer les fentes d'aération.
- Posez l'appareil sur une surface stable et prévoyez suffisamment de place pour que l'air puisse circuler librement lorsque l'appareil fonctionne.
- Placez l'appareil de façon à ce qu'il ne présente aucun risque ou ne perturbe pas le fonctionnement d'autres appareils.
- Ne posez pas d'appareils de plus de 16kg sur cet appareil. Placez les moniteurs encombrants directement sur la surface de travail.
- Assurez-vous que les fils et câbles sont soigneusement installés afin d'écarter tout danger de trébuchement. Ne tirez pas ou ne tordez pas ou n'utilisez pas les fils ou câbles pour accrocher ou soulever les unités.
- L'appareil ne doit fonctionner qu'avec les panneaux fixés.
- Gardez cet appareil à température ambiante variant entre +5°C et +35°C et une humidité relative de 10% à 80% (sans condensation).
- Placez les sachets plastiques d'emballage hors de portée des enfants et des animaux.
- Gardez l'emballage d'origine au cas où vous devriez transporter l'appareil.
- Cet ordinateur est conçu pour être utilisé uniquement comme ordinateur de bureau.

Précautions d'emploi

- Ne versez pas de liquide sur l'appareil, et si malencontreusement c'était le cas, faites le vérifier par votre fournisseur.
- Ne faites pas tomber l'appareil ou ne le soumettez pas à des chocs ou des secousses intempestives.
- N'obstruez pas, ne couvrez pas ou n'insérez pas d'objets dans l'appareil.

Istruzioni per la sicurezza delle operazioni (Guidelines for safe operation)

Questo prodotto non è predisposto all'uso come componente fondamentale di dispositivi per la sopravvivenza o di qualsiasi sistema in cui si potrebbe avere un guasto con il risultato di un danno fisico.

L'apparecchiatura descritta in questa guida è ideata e prodotta in conformità con gli standard di sicurezza internazionale EN60950 (BS7002) ed è predisposta all'uso solo come personal computer. Non deve essere utilizzata per altri scopi. È molto importante che l'installazione e l'operazione siano condotte secondo le istruzioni fornite in questa guida. Per un funzionamento continuo, sicuro e attendibile, osservare le seguenti direttive:

Sicurezza elettrica

- Questa apparecchiatura deve essere messa a terra per evitare pericolo di scosse elettriche.
- L'apparecchiatura deve essere installata vicino alla presa di corrente, che deve essere accessibile.
- Se la spina fornita non è adatta all'alimentazione nel proprio paese, consultare il fornitore.
- Non provare ad aprire il display o il monitor sia che venga fornito con l'apparecchiatura o meno.
- Non superare le seguenti tensioni:

Interfaccia del mouse	80mA	
Interfaccia della tastiera	300mA	
Interfaccia del monitor	250mA	
Schede di espansione (per scheda)	+5V	1A
	+12V	250mA
	-5V	10mA

- Non utilizzare questa apparecchiatura se uno dei cavi è danneggiato.
- Spegnere e staccare l'apparecchiatura e gli accessori prima di aprire l'unità (per esempio per installare un aggiornamento).
- Spegnare e staccare l'apparecchiatura, se non si desidera utilizzarla per qualche giorno.

Installazione

- Questa apparecchiatura è solo per uso interno (in un ambiente asciutto e privo di polvere).
- Non esporre l'apparecchiatura ad improvvise ed estreme temperature, luce solare diretta o altre fonti di calore.
- È necessario collegare i piedi del supporto quando si utilizza il computer in modalità "torre" per accertarsi che le fessure di ventilazione non siano ostruite.
- Collocare l'apparecchiatura su una superficie piana dura, con spazio sufficiente alla circolazione dell'aria durante l'utilizzo.
- Posizionare l'apparecchiatura in modo tale che non presenti pericolo o che non interferisca con un'altra apparecchiatura.
- Non collocare un'apparecchiatura che pesa più di 16kg sull'apparecchiatura. Si consiglia di collocare monitor più pesanti direttamente sulla superficie di lavoro.
- Accertarsi che i fili e i cavi siano indirizzati adeguatamente in modo tale che non possano essere di ostacolo e intralcio. Non tirare o attorcigliare i fili o i cavi e non utilizzarli per appendere o sollevare una delle unità.
- L'apparecchiatura deve essere fatta funzionare solo con i coperchi fissati.
- Tenere il computer a temperatura ambiente da +5°C a +35°C (+41° a +95° Fahrenheit) a un'umidità relativa dal 10% all'80% (senza condensa).
- Tenere i sacchetti di plastica utilizzati nella confezione lontani da bambini e animali.
- Conservare la confezione originale in caso di trasporto del computer.
- Questa apparecchiatura è ideata per essere utilizzata esclusivamente come computer da tavolo.

Precauzioni dell'uso

- Non versare liquidi sull'apparecchiatura. Nel caso in cui ciò avvenga, spegnere immediatamente l'apparecchiatura e portarla al fornitore per controllo.
- Non fare cadere l'apparecchiatura e non sottoporla a urti eccessivi.
- Non ostruire, non coprire l'apparecchiatura e non infilarvi oggetti.

Normas de seguridad de manejo (Guidelines for safe operation)

E

Este producto no está concebido para su empleo como elemento integrante crítico de dispositivos médicos de vigilancia intensiva ni de ningún otro sistema cuyo fallo puediera comportar lesiones físicas.

El equipo descrito en esta guía está diseñado y manufacturado de acuerdo con las normas internacionales EN60950 (BS7002) y ha sido concebido exclusivamente para su empleo como ordenador personal. No debe usarse para ningún otro propósito. Es sumamente importante que la instalación y funcionamiento se lleven a cabo de acuerdo con las instrucciones dadas en esta guía. En el interés de un funcionamiento continuado y seguro, aténgase a las normas siguientes:

Seguridad eléctrica

- Este equipo tiene que estar conectado a una toma de tierra para así prevenir la posibilidad de choque eléctrico.
- Este equipo ha de instalarse cerca de la salida de corriente, que será de fácil acceso.
- Si el enchufe provisto no es el que corresponde al suministro de corriente del país en que se va a instalar el equipo, consulte con su distribuidor.
- No abra ninguna pantalla o monitor, independientemente de si es el suministrado con el equipo o no.
- No exceda la corriente máxima indicada:

Interfaz del ratón	80mA	
Interfaz del teclado	300mA	
Interfaz del monitor	250mA	
Tarjetas de expansión	+5v	1A
(por tarjeta)	+12V	250mA
	-5V	10mA

- No utilice este equipo si los cables han sufrido desperfectos.
- Apague y desenchufe el equipo y todos sus accesorios antes de abrir la unidad (por ejemplo, para instalar una actualización).
- Apague y desenchufe el equipo si no se va a utilizar durante varios días.

Instalación

- Este equipo está concebido para su uso en interiores exclusivamente (en lugares secos y sin polvo).
- No exponga el equipo a cambios bruscos de temperatura, a la luz directa del sol ni a otras fuentes de calor.
- Fije los pies de sujeción a la torre cuando coloque el ordenador en esta modalidad, con el fin de impedir la obstrucción de las ranuras de ventilación.
- Coloque el equipo en una superficie dura y nivelada, dejando suficiente espacio para la circulación del aire durante su funcionamiento.
- Coloque el equipo de manera tal que no constituya un peligro ni interfiera con otro equipo.
- No coloque encima ningún otro equipo cuyo peso supere los 16kg. Se recomienda que los monitores que superen este peso se coloquen directamente sobre la superficie de trabajo.
- Extienda los cables de forma que no se enganche ni tropiece nadie con ellos. No tire de ellos ni los tuerza o use para colgar o levantar las unidades.
- El equipo debe utilizarse exclusivamente con la cubierta bien cerrada.
- Mantenga la máquina a una temperatura ambiente comprendida entre +5°C y +35°C y a una humedad relativa del 10% al 80% (sin condensación).
- Mantenga fuera del alcance de niños y animales las bolsas de plástico utilizadas en el envase.
- Guarde el envase original para transportar el ordenador en caso de que fuera preciso.
- Este aparato está diseñado para su uso exclusivo como ordenador de escritorio.

Precauciones de manejo

- No derrame líquidos sobre el equipo. En caso de derrame, apague el equipo inmediatamente y llévelo a su distribuidor para su revisión.
- No deje caer el equipo ni lo exponga a golpes o sacudidas.
- No obstruya, cubra o introduzca objetos en el equipo.

Guarantee (valid in UK only)

This equipment is guaranteed by Acorn Computers Limited ("ACORN") against mechanical and electrical defects subject to the conditions set out below.

Note

Items which by their nature or design only have a restricted life are not guaranteed beyond such life.

Period of validity

This guarantee shall be valid for a period of twelve (12) months from the date of purchase.

Other conditions

1 This guarantee is personal to the original purchaser, is not transferable and shall not be valid unless the equipment was purchased from ACORN or from an approved ACORN supplier.

2 This guarantee will be invalidated if the equipment is misused or damaged or is modified in any way without the written consent of ACORN or if any original component or accessory has been replaced by any component or accessory of a type not recommended or approved by ACORN, or if operated other than in accordance with the *Welcome Guide*, and RISC OS 3 *User Guide*.

3 Any claims made under this guarantee must whenever possible be made through the supplier from whom the equipment was originally purchased. If this is not possible a claim may be made to any other approved ACORN supplier appointed by ACORN to service the equipment (a list of whom can be supplied on application). This guarantee together with proof of the date of purchase must be produced when any claim is made. Any costs of carriage to and from the supplier must be paid by the purchaser.

4 If ACORN agrees with the supplier that the equipment should be forwarded to ACORN for repair then ACORN will arrange for collection and return of the equipment at no charge. In all other cases the supplier will be responsible for effecting any necessary repairs in accordance with ACORN's service policy. Any repairs under this guarantee will be carried out at no cost to the original purchaser.

5 If any equipment returned is found to comply with its original specification ACORN reserves the right to charge a reasonable fee for testing the equipment and for return carriage.

6 The liability of ACORN under this guarantee shall be limited to the cost of repair or complete replacement (at ACORN's discretion) of equipment which proves to be defective.

7 ACORN does not accept liability for any loss or damage during transit to or from the supplier or ACORN, but every effort will be made to investigate claims of loss or damage if these arise.

THIS GUARANTEE DOES NOT AFFECT OR PREJUDICE THE PURCHASER'S STATUTORY RIGHTS.

Guarantee procedure

To claim under this guarantee, proof of date of purchase is required. This is provided by your copy of the invoice from the supplier from whom the equipment was originally purchased. Keep the invoice safe and produce it to support any claim you may make under this guarantee.

You may find it useful to make a note in the box below of the serial number, date of purchase and details of any upgrades you fit, and quote them in any correspondence.

Serial Number _____ Date of purchase _____

Upgrades _____

_____

_____

Working with your computer

Working with a computer is like working with many other types of special equipment. You, and your body, have to get used to working in a way that is initially quite different from the way you worked previously. Working with a computer requires

- concentration
- close visual working with the screen
- frequent eye movements between screen and work papers
- sitting still for long periods
- typing for long periods and stress of hands, wrists and fingers
- unaccustomed posture.

This chapter is to help you alleviate all of these possible causes of discomfort and stress. Follow the instructions in the next few pages and you'll always be working comfortably.

Positioning yourself and the computer

Always make sure you're comfortable when you work at the computer. It's important that your seating position is correct in relation to the computer screen and keyboard.

Sitting properly

If possible, use an adjustable chair that gives support to the lower back. You should adjust the chair so that you are sitting with a straight back, with your upper legs horizontal and with your feet flat on the floor.

Adjust the backrest height so that your buttocks fit into the space between the backrest and the seat. The backrest should support you in the hollow of the back; adjust its tilt to give firm support in this area.

Your shoulder and upper arm should also make a right-angle with the forearm and your hands.

If you find that you need to raise your chair to get the correct posture you can use a foot rest to make up the gap between your feet and the floor. You may also be able to lower the desk height.

Top of the screen close to eye level
Screen positioned to avoid glare
Feet flat on the floor
Shoulders and neck relaxed
Forearms level with the desk
Lower back supported
Upper leg horizontal

Give yourself room

Give yourself enough room to use the computer, keyboard and mouse comfortably. Place your work items where you can view them easily but not where they interfere with the keyboard or mouse. You might want to use a document stand to hold your papers.

Arranging the computer monitor

Your monitor should be positioned so that the top of the screen is at eye level when you are sitting at the keyboard. Don't allow your head to hunch forward; keep your neck relaxed. You should view the screen from a distance of about 50 to 70 centimetres.

Reduce reflections

Arrange the monitor position; the monitor 'tilts' and 'swivels' on its base, so that any glare and reflection from lights and windows can be minimised. You might want to move the light sources about the room until you find the positions that give least glare. You may also find that partially closing the window curtains helps.

Cleaning your screen regularly also helps reduce reflections.

You might also find that adjusting the Brightness and Contrast controls on the monitor help; read the documentation that comes with your monitor for more information.

Eyestrain

When you use a computer, your eyes are continually focused on the monitor for a long time. This makes the eye muscles work harder so it is important to have frequent short rest breaks to look at distant objects from time to time to give your eye muscles a change and a rest.

If you wear contact lenses, they may feel dry; this is because you tend to blink less often when staring at the screen. Counteract this by blinking often.

If you suffer from eyestrain you may want to have an eyesight test; some people who don't normally wear glasses may need them for computer work.

Arranging the keyboard and mouse

If you are not a touch typist you may find it easier if you position your keyboard in from the edge of the desk so that you can rest your forearms on the desktop. You might also try a keyboard wrist mat; these allow you to rest your wrists at the same level as the keyboard while you type.

Always try to use a light touch when typing; the keyboard keys respond to a very light pressure. A light touch will also help you keep your hands and wrists relaxed which will in turn reduce tension and fatigue.

Put the mouse where you can easily reach it; normally just to the side of the keyboard. Give the mouse plenty of space so that you can make unimpeded mouse movements easily. Make sure that you use it on a surface on which it rolls easily; if your desk is very smooth you may find that using a mouse mat alleviates the problem of the mouse slipping.

Take a break

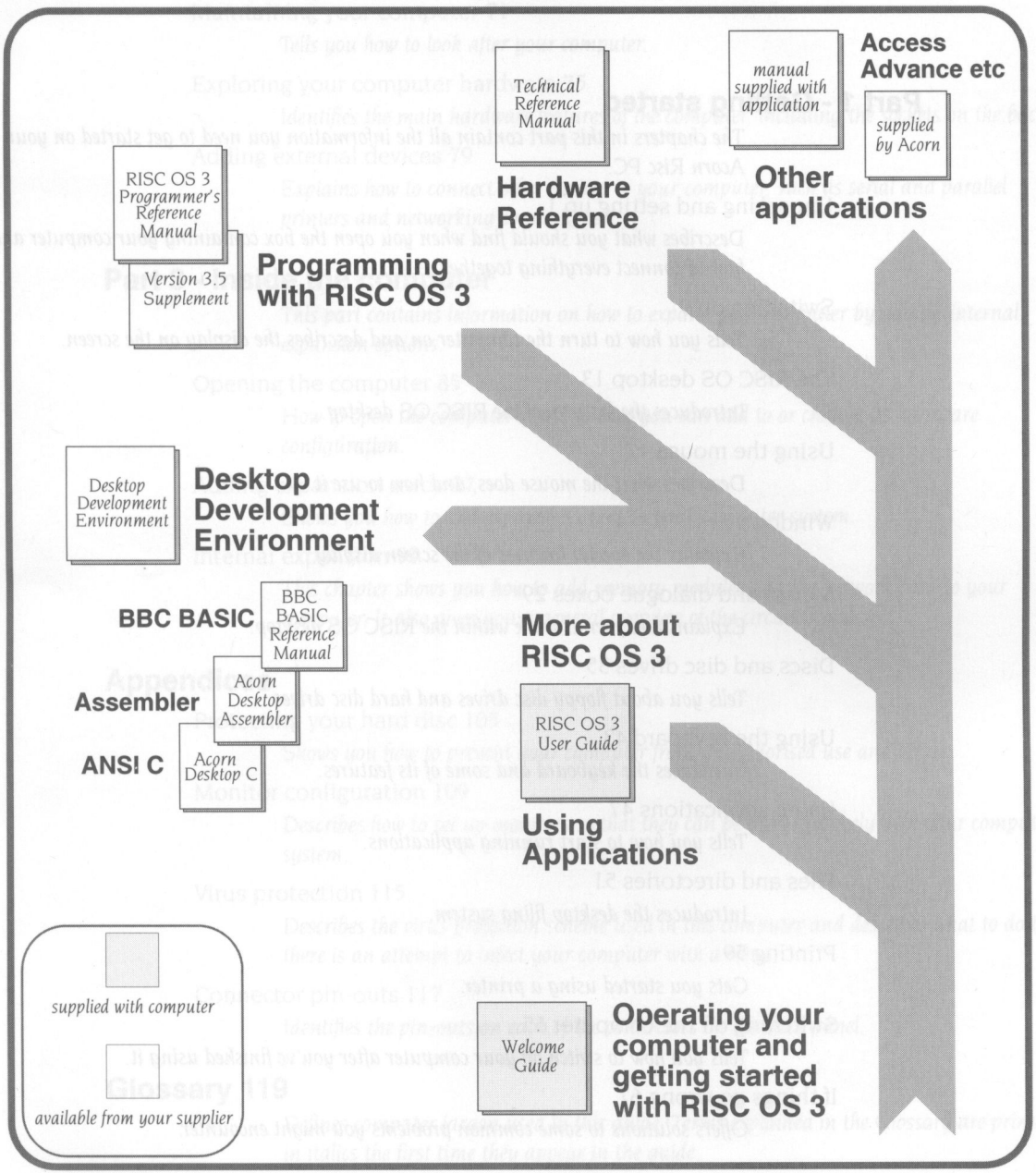
After you've been working for a period it's important that you take a break. This gives your body the chance to relieve any muscular tensions that may have built up. Stand up and move about or have a short walk. Frequent short breaks help reduce tiredness and stress.

If you have any problems

If you develop any discomfort or pain in your hands, wrists, arms or back you should always consult your doctor.

Documentation roadmap

This roadmap will help you decide which tools and manuals you will need as you start to use your Acorn computer and develop your skills.



Contents

Part 1 - Getting started

The chapters in this part contain all the information you need to get started on your Acorn Risc PC.

Unpacking and setting up 1

Describes what you should find when you open the box containing your computer and how to connect everything together.

Switching on 9

Tells you how to turn the computer on and describes the display on the screen.

The RISC OS desktop 13

Introduces the features of the RISC OS *desktop.*

Using the mouse 17

Describes what the mouse does, and how to use it.

Windows 21

Explains the special features of the screen display.

Menus and dialogue boxes 29

Explains how menus work within the RISC OS *desktop.*

Discs and disc drives 35

Tells you about floppy disc drives and hard disc drives.

Using the keyboard 43

Introduces the keyboard and some of its features.

Using applications 47

Tells you how to start running applications.

Files and directories 51

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Printing 59

Gets you started using a printer.

Switching off the computer 65

Tells you how to switch off your computer after you've finished using it.

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Offers solutions to some common problems you might encounter.

Part 2 - More about your computer

This part contains technical information and more detailed installation instructions, along with some advice on looking after your computer.

Maintaining your computer 71

Tells you how to look after your computer.

Exploring your computer hardware 75

Identifies the main hardware features of the computer, including the sockets on the back.

Adding external devices 79

Explains how to connect other devices to your computer, such as serial and parallel printers and networking connections.

Part 3 - Inside the computer

This part contains information on how to expand your computer by adding internal expansion options.

Opening the computer 85

How to open the computer's case so that you can add to or change its hardware configuration.

Adding expansion cards 97

Shows you how to add expansion cards to your computer system.

Internal expansion 99

This chapter shows you how to add memory modules and the network card to your computer. It also gives you a general overview of the circuit board.

Appendices

Protecting your hard disc 105

Shows you how to prevent your computer from unauthorised use and abuse.

Monitor configuration 109

Describes how to set up monitors so that they can be used effectively with your computer system.

Virus protection 115

Describes the virus protection scheme used in this computer and describes what to do if there is an attempt to infect your computer with a virus.

Connector pin-outs 117

Identifies the pin-outs on each of the connectors on the back panel.

Glossary 119

Defines computer jargon used in this guide. Terms explained in the Glossary are printed in italics the first time they appear in the guide.

Contents

Unpacking and setting up

This chapter tells you about unpacking and setting up your Acorn Risc PC. *It also gives some hints on where to set it up.*

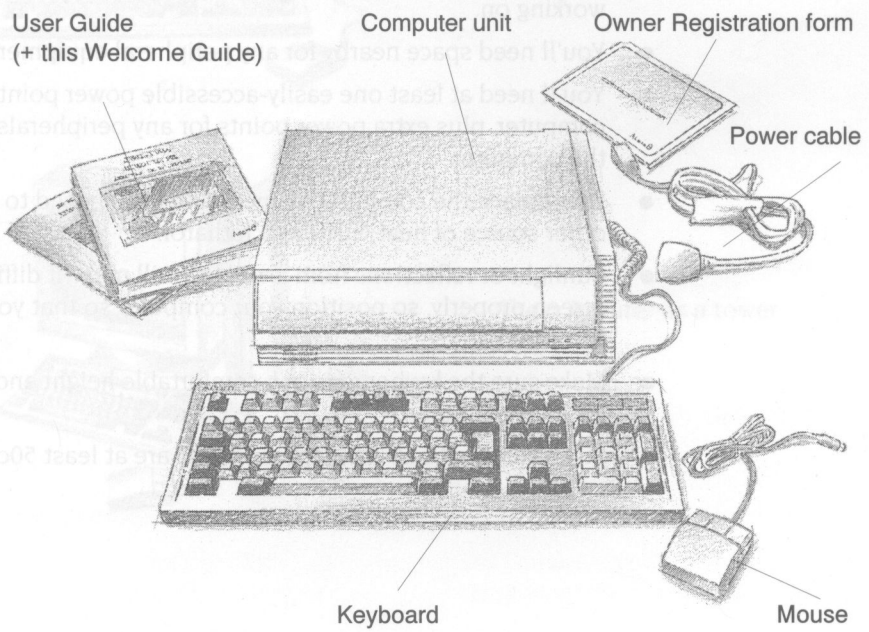
Unpacking

Unpack your computer on a flat surface – either on the floor, or on a large table where there's plenty of room for the boxes as well as for the computer. Take everything out of the cartons, making sure you don't break the packaging material, as you may need this later.

Warning: the packaging contains plastic bags which can be dangerous to young children. Please keep them out of their reach.

Checklist

Check that you have received all the items shown below. If you don't have all of these items, or if any of them appears damaged, notify your supplier immediately.



You'll probably also have a *monitor* (with mains lead and connecting cable). It is supplied in a separate box.

If you have bought any *peripheral* equipment to attach to your computer, such as a *printer*, check that your supplier has provided the correct cables (see the chapter *Adding external devices* on page 79 if you're not sure).

Complete the Owner Registration Form and post it back to Acorn (purchasers outside the UK should send it to their local supplier or national distributor). This will enable us to inform you of new products and upgrades to your computer as they become available.

Put all the packaging back into the carton and put it away somewhere safe. If you ever want to transport your computer, it is best to use the box, even if you only take it a short distance in a car. If you ever have to take it back to your supplier you must pack it back into the original carton.

Choosing where to set up your computer

Bear the following points in mind when deciding exactly where to place your computer:

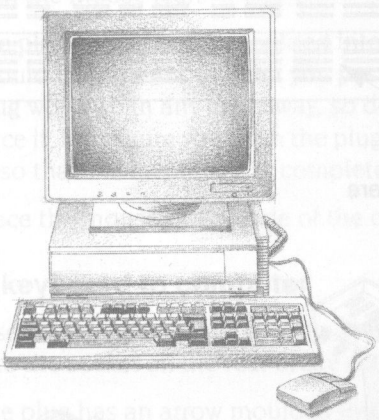
- You'll need a firm, flat surface with enough space at one side to move the mouse around, and space at the other side for manuals and papers you may be working on.
- You'll need space nearby for any peripheral equipment (such as a printer).
- You'll need at least one easily-accessible power point within 1.5 metres of the computer, plus extra power points for any peripherals you want to connect to the computer.
- Don't place the computer where it will be exposed to direct sunlight, or any other source of heat, such as a radiator.
- Sunlight or reflections from a window will make it difficult to see things on the screen properly, so position your computer so that you can see the screen comfortably.
- Make sure the keyboard is at a comfortable height and position for you to type for long periods.
- Make sure that any adjacent monitors are at least 50cm apart.

Choosing a desktop or tower arrangement

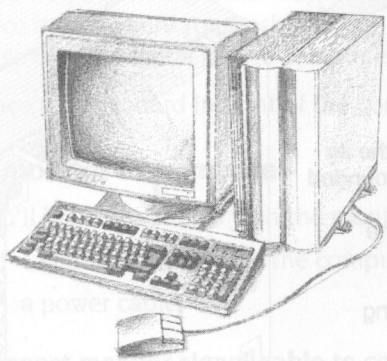
Your computer can either be placed flat on the desk or vertically on its side, rather like a tower. You must not put the computer on the floor.

If you have the computer flat on the desktop, you can put your monitor on top of it. If you use the tower arrangement, you place the computer next to the monitor.

If you are using a monitor that weighs over 16kg (35lb), you must not put the monitor on top of the computer. Typically 36cm (14") and 38cm (15") monitors can be put on top of the computer whereas 43cm (17"), 48cm (19") and 51cm (20") monitors cannot.



The computer flat on the desk

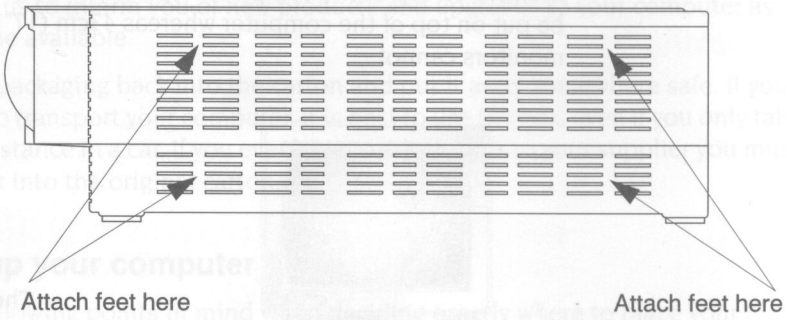


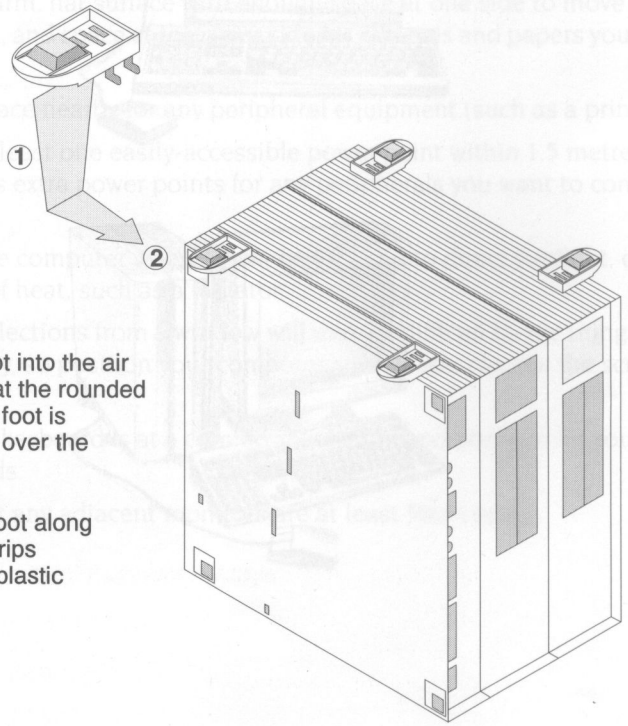
The computer as a tower

Fitting the tower feet

Before you can use your computer in a tower arrangement you **must** fit special tower feet to the computer unit. This is to make sure that the air vents to the power supply and fan are not obstructed.

The feet fit into slots in the computer's air intake grills. The feet push in at the positions show in the diagram and slide until they lock. The feet must only be fitted to the right side of the computer (when looking from the front).





① Put the foot into the air vent so that the rounded part of the foot is protruding over the edge.

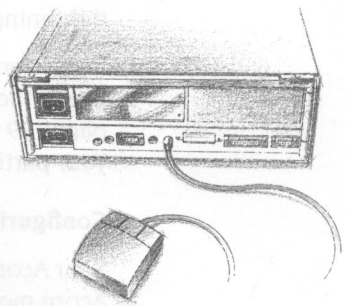
② Slide the foot along so that it grips under the plastic

Setting up the computer

This section describes how to connect the components of the computer together and set it up ready for use. Before you start, please read the *Guidelines for safe operation* in the front of this guide. To connect the cables, look for the socket on the back of the computer with the icon matching that shown in each section.

Connect mouse to computer

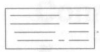
Take the *mouse* out of its plastic bag. The plug on the end of the mouse goes into the socket on the back of the computer. The socket is labelled with the mouse icon.



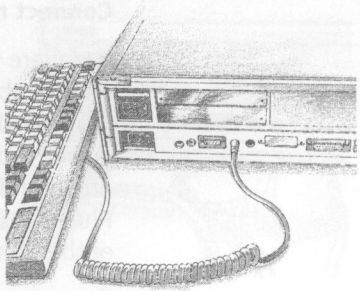
The plug has an arrow moulded into it; this should be uppermost when you push it in. The plug won't go in any other way, so don't try to force it. Make sure you push the plug all the way in so that the metal part is completely hidden.

Place the mouse by the side of the computer.

Connect keyboard to computer



Insert the plug on the end of the keyboard cable into the socket on the rear of the computer unit.



The plug has an arrow moulded into it; this should be uppermost when you push it in. The plug won't go in any other way, so don't try to force it. Make sure you push the plug all the way in so that the metal part is completely hidden.

Place the keyboard in front of the computer.

Connect monitor to computer

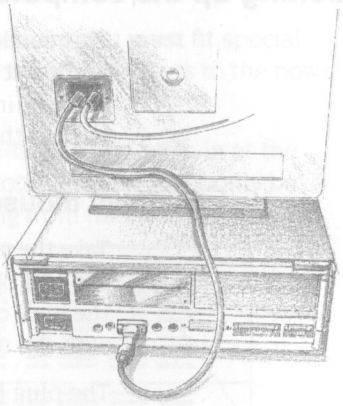
You'll have two cables with the monitor:

- a signal cable (allows the computer and the monitor to 'talk' to each other)
- a power cable.

Connect monitor signal cable to computer

Put the monitor on top of the computer (unless you are using a tower arrangement or have a monitor which weighs over 16kg (35lb), in which case place it alongside the computer unit).

If you are using an Acorn AKF60 monitor, the signal cable is permanently attached to the monitor. If you have a different monitor push the **socket** end of the monitor cable into the back of the monitor.



Push the **plug** end of the monitor cable into the socket on the back of the computer labelled with the monitor icon. Secure the plug by tightening the securing screws.

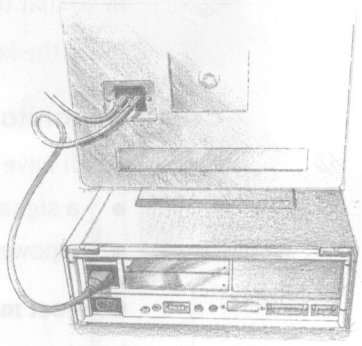
If you don't have a monitor lead or have trouble fitting the lead, check in *Monitor configuration* on page 109 – you may need an adaptor cable for your particular monitor.

Configuring your monitor correctly

Your Acorn AKF60 monitor is now set up correctly. If you're using a different type of Acorn monitor it may not be set up to give its optimum performance. After you've finished setting up your computer you should read *Monitor configuration* on page 109. This shows you how to check and, if necessary, change your monitor configuration.

Connect monitor to power supply (but don't switch on yet)

If you are using an Acorn AKF60 monitor, the power cable is permanently attached to the monitor. If you are using a different monitor the power cable for your monitor has a socket on one end (like the type you connect to a kettle). Plug this into the power connector on the back of the monitor.



If your monitor has an IEC-type power cable (with a **plug** on the end) plug this into the power outlet (marked ⏚ O/P) on the back of the computer. (Not all types of monitor may be connected to this power outlet. If in doubt, check with your supplier.)

Notes:

- The power outlet on the back of the computer is **ONLY** suitable for monitors.
- Your monitor's power cable may have a standard power plug. If so, plug it into the power outlet on the wall.

Connect printer to computer

If you have an Acorn JP150 printer, connect it to the Parallel port at the rear of the computer. This port is denoted by the printer icon. Most other types of printer also connect to the Parallel port. Make sure that your printer is set up to use the parallel connection. Check your printer documentation if you are unsure.

Connect other peripherals

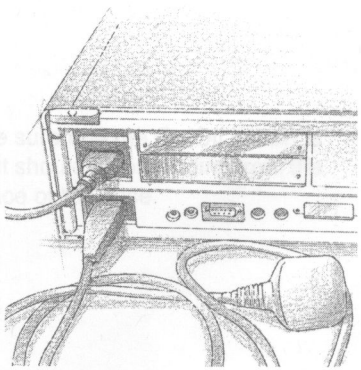
Connect any other peripherals you have **before** you switch on the power. You might wish to add an expansion card or a network card to the computer. The chapter *Adding external devices* on page 79 gives you some advice on connecting other types of peripheral.

Connect the power cables for any other peripherals to power outlets on the wall **(but don't switch on yet)**.

Connect computer to power supply

Finally, plug the connector on the computer power cable (the one that looks like the type you plug into a kettle) into the socket marked ⊖ I/P on the back of the computer unit. Plug the other end into the power supply outlet on the wall.

Don't switch on the power supply yet: follow the instructions in the next chapter.



Switching on

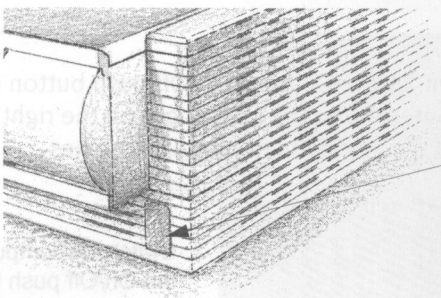
This chapter tells you how to power up your computer for the first time, and describes what you see on the screen when you do.

Equipment check

First check that you have connected all parts of the computer together properly, as described in the previous chapter.

Before switching on the mains supply

Before you start, check that the monitor, printer (if you have one) and computer On/Off switches are set to **Off**. The On/Off push button for the computer is on the lower righthand side of the front of the computer.



Make sure that the On/Off switch is **Off**. It should be protruding from the surface of the case.

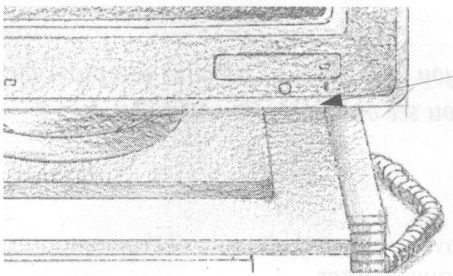
Switching on

Check that the mains leads for the system are correctly connected.

Switch **on** the mains supply for the computer (at the power outlet on the wall), and that for the monitor (if its power cable is not plugged into the back of the computer) and printer (if you have one).

Switch on the monitor and printer.

The monitor has a separate switch. The manual for your monitor explains how to turn it on and, if necessary, adjust the brightness.



Switch the monitor **On** by pressing the On/Off push button.

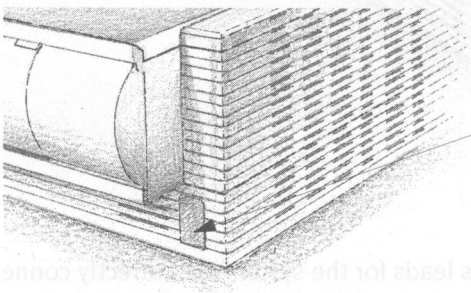
The On/Off switch for the Acorn AKF60 monitor is underneath the front righthand side.

If your monitor is plugged into the back of the computer, it won't be switched on until you switch on the computer.

The manual for your printer explains how to switch it on.

Switch on the computer

Switch the computer **On**, by pressing the On/Off push button on the front of the computer. As the computer starts, the green light on the righthand side of the computer lights up and the orange hard disc light flashes.



Switch the computer **On** by pressing the On/Off push button.

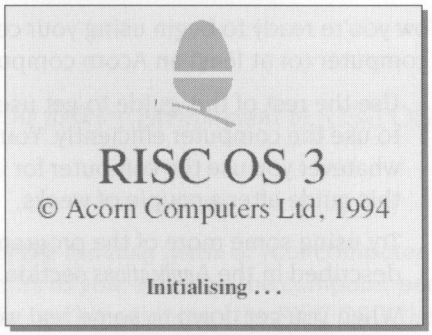
Depending on your monitor (and whether it has warmed up yet) you might see the screen change colour while the computer performs some *self-tests*. The light on the *floppy disc drive* will also flash once when the drive is being checked.

Switch on any other peripherals

Switch on any peripherals that you have connected, such as a printer (when you're familiar with the computer and want to print some work, see *Printing* on page 59.)

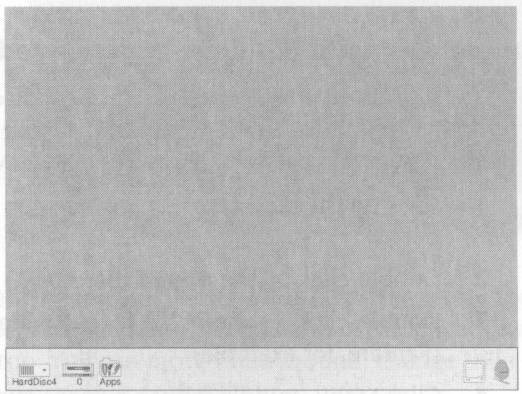
The desktop

Now you will see the RISC OS introductory screen:



The VProtect program, amongst others, is initialised at this point. Your computer is protected against most types of known computer virus. For more information about Virus protection for your computer refer to *Virus protection* on page 115.

After a few seconds, you should see this on your screen:



If the display does not look similar to that shown above (or if the floppy disc drive light flashes more than once) see *If things go wrong* on page 67. If you are using a computer that has been set up by somebody else it is quite possible that the screen may look somewhat different.

What now?

Scenic route (for first-time users)

Now you're ready to begin using your computer. If this is the first time you've used a computer (or at least an Acorn computer) take the following route:

1. Use the rest of this guide to get used to the RISC OS *desktop*, and to learn how to use the computer efficiently. You'll need to know the basics explained here, whatever you use the computer for later, although you can probably do without this guide after a couple of weeks.
2. Try using some more of the programs supplied with your computer – they're described in the *Applications* section of the RISC OS 3 *User Guide*.
3. When you get down to some real work you'll find more detailed information about the operating system in the RISC OS 3 *User Guide*.
4. Ask your supplier what other *applications* are available to suit your particular purpose.

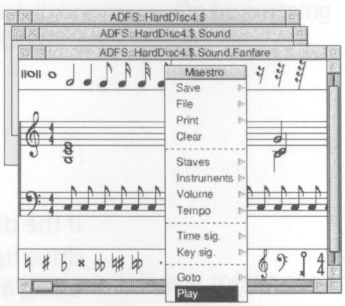
If you want to stop for the moment, you can just switch off at the On/Off switch (and switch off any peripherals too). Later on, when you've been using your computer a while, you'll find that it's better to follow the instructions in *Switching off the computer* on page 65.

Motorway route (for the more experienced)

If you're familiar with computers, mice, discs and so on, and you want to start doing something right away, start by trying out some of the computer's own *applications*. For example, play a tune with !Maestro:

1. Click on the hard disc icon on the icon bar.
2. Double-click on the **Sound** directory.

3. Double-click on one of the Maestro files (Fanfare, for example).
4. Click Menu (middle mouse button) over Fanfare's window to display a menu. Click Select on the **Play** option to start. Choose **Play** again to stop!



Don't despair if this description sounds like it's written in a foreign language – just take the scenic route instead, and you'll pick up the jargon as you go.

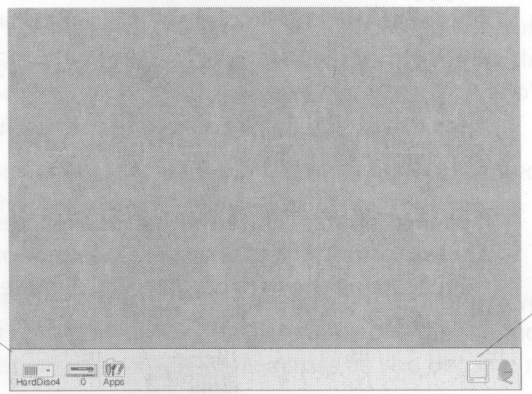
The RISC OS desktop

An introduction to the desktop environment of RISC OS.

The RISC OS desktop

RISC OS is the name of the *operating system* of your computer, it controls the way the computer screen appears to you, and how the computer performs various actions and tasks. There's more on this subject in the RISC OS 3 *User Guide*, if you're interested.

By now, you should be able to see the RISC OS *desktop* on your screen.



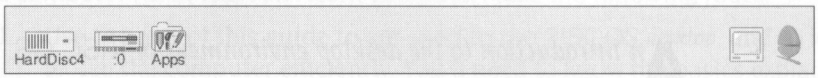
The desktop is your working area. At first it is clear, except for the bar across the bottom of the screen. As you perform tasks and use applications, things will be added to the desktop. You can move them around, change their size, hide and remove them to make room for others.

Icons

The pictures at the bottom of the screen represent the tools, applications and *storage devices* available. The pictures are called *icons*. The area they occupy is called the *icon bar*.

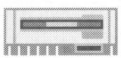
Device icons

The icons on the left of the icon bar represent the *devices* which are available – that is, the discs and other places where you can load information from, and save it to:



Hard disc drive
Floppy disc drive
Apps directory

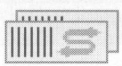
Hard disc drive. The hard disc drive is where you store all of your work. There is more about *hard discs* in *Discs and disc drives* on page 35.



Floppy disc drive. The computer uses 3.5 inch *floppy discs*, which you put into the slot in the front of the computer. Floppy discs are described in *Discs and disc drives* on page 35.

Apps. Gives you quick access to some useful applications which are stored on the computer's hard disc.

If your computer is fitted with a *network* interface, there will also be a **Net** icon or **Access** icon. This lets you share information or equipment connected to other computers on the network. You'll find more information about networking in the *User Guide*.

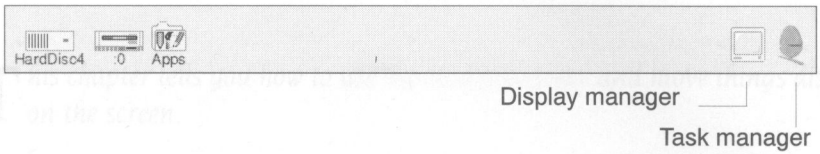


Access icon

Network icon

Applications icons

On the righthand side are the *applications icons*. These represent things you can do, such as word-processing and drawing programs. Initially there are only two:



Display manager. The *Display manager* enables you to change the screen resolution (the amount of data you can display) and the numbers of colours or grey scales displayed on the screen. The appendix entitled *Monitor configuration* on page 109 gives you more information about this.

Task manager. The *Task manager* enables you to look at and control your computer's memory, amongst other things. More information on this is given in the RISC OS 3 *User Guide* in the chapter *Managing the desktop*. You don't need to worry about this for now.

Any other applications which you load will normally be represented by icons displayed on the righthand side of the icon bar.

The pointer

The arrow on the screen is the *pointer*. It is used to point at things you want to use or move. You move the pointer across the screen by moving the mouse. There are other types of pointer, which you will come across as you become more familiar with your computer.

Using the mouse

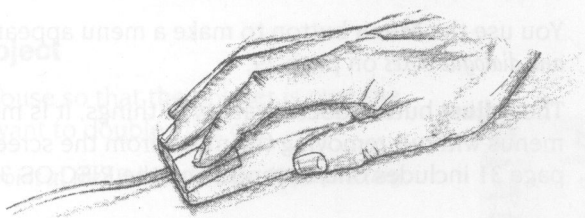
This chapter tells you how to use the mouse to select and move things displayed on the screen.

What's a mouse?

A mouse is one way of interacting with the computer (see *Using the keyboard* on page 43 for another). As you move the mouse on a flat surface, so the pointer moves around on the screen. Using the mouse and its three buttons you control what the computer does.

Holding the mouse

Hold the mouse with the cable away from you so that your fingers rest easily on the three buttons. If you are right-handed, you should hold it like this:



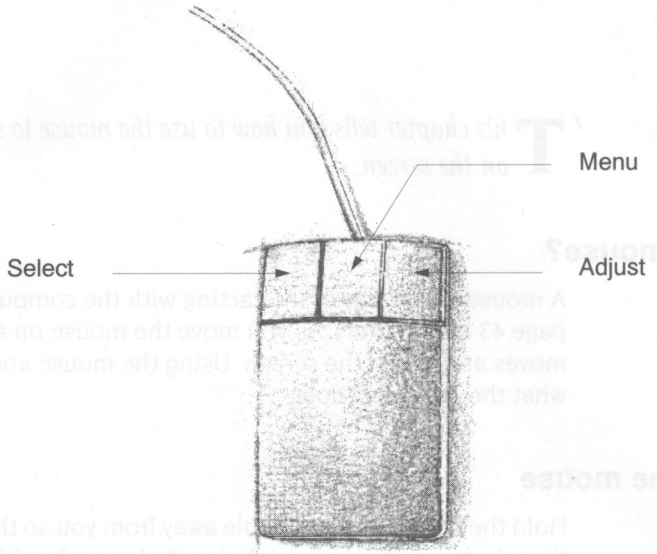
Move the mouse around and watch the pointer move around the screen. If you run out of space to move the mouse, lift it up and put it down again in a more convenient position. While the mouse is lifted, the pointer will not move, and when you put it down again you can carry on where you left off.

Use the mouse on a smooth but non-slippery surface. A mouse mat (available from your supplier) is ideal. Other surfaces on which the mouse works well are wood and coarse paper.

The mouse will not work well on painted metal or highly polished surfaces.

The mouse buttons

The mouse has three buttons, known as *Select*, *Menu* and *Adjust*:



You use the **Select** button to select and move icons displayed on the screen, or to choose from *menus*.

You use the **Menu** button to make a menu appear. Menus are described in *Menus and dialogue boxes* on page 29.

The **Adjust** button does a variety of things. It is most often used to choose from menus without removing the menu from the screen. *Keeping a menu on the screen* on page 31 includes one instance, and the RISC OS 3 *User Guide* describes many more.

Mouse techniques

The following mouse techniques are all you need to know to start using your computer:

clicking – pressing the mouse button just once and then releasing it immediately. This is used to choose an icon or action.

double-clicking – pressing and releasing twice in quick succession. This is used to initiate an action, or to load an application.

dragging – moving an object from one place to another whilst holding down the Select (or Adjust) mouse button.

Clicking and dragging techniques are summarised on the following pages. You can try out the examples in *italic text*.

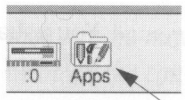
Clicking

You usually use clicking to choose an object so that you can then manipulate it.

1 Point at the object

Move the mouse so that the pointer is over the object you want to select.

For example, point at the Apps icon on the icon bar.

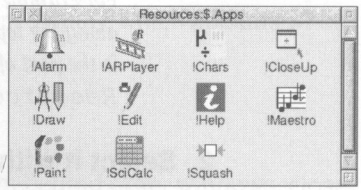


Move the pointer over this icon and click

2 Click Select

Press and release the Select (lefthand) button of the mouse.

The Apps directory display will appear.



Note: From now on, 'clicking' means clicking with the Select button, unless otherwise stated.

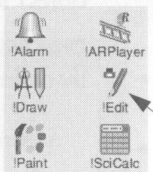
Double-clicking

You usually use double-clicking to initiate an action, such as loading an application.

1 Point at the object

Move the mouse so that the pointer is over the object you want to double-click on.

For example, point at the !Edit icon in the Apps directory display.



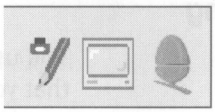
Move the pointer over this icon

2 Double-click on the object

Press and release the Select (lefthand) mouse button twice in quick succession.

You have to make the second click while the second little arrow (the *double-click arrow*) which appears on the pointer after the first click, is still visible. If the item is highlighted but nothing else happens, try again, but double-click a little faster. Try not to move the mouse while you're doing this.

Double-click on the !Edit *icon. The Edit icon will appear on the icon bar, showing that the Edit application has been loaded ready for use.*



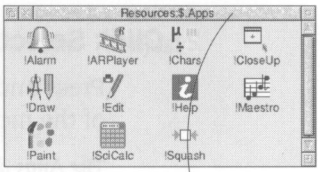
Dragging

You usually use dragging to move an object to a different place on the screen.

1 Point at the object

Move the mouse so that the pointer is over the object you want to move.

For example, to move a window, point at the title bar along the top of the Apps directory display. (The title bar is the part of the directory display containing the words `Resources:$.Apps`)



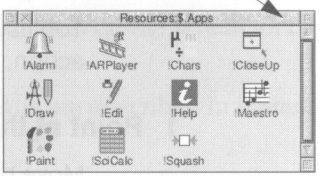
2 Select it with the mouse

Press **and hold down** the Select (lefthand) button of the mouse.

3 Move the mouse and drag the object

Move the mouse to drag the object across the screen. Release the mouse button when the object is where you want it to be.

Drag the Apps directory display to a different position on the desktop.



Windows

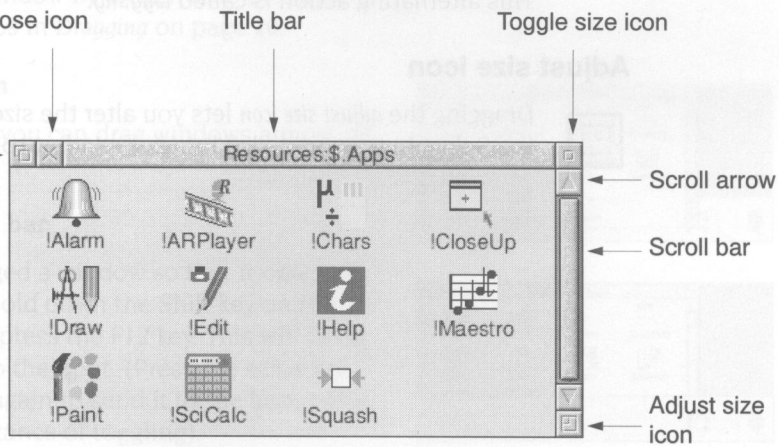
This chapter describes windows and explains how they can be moved, resized, hidden and closed. It also describes how to move through the contents of a document too large to display in one window all at once.

What is a window?

A *window* is an area of the screen displaying an activity or application. An example of a window you have seen so far is the Apps directory display, which appears when you click on the Apps icon on the icon bar.

Features of windows

You can move windows around the screen, hide them behind other windows, close them to a small icon on the desktop, or close them completely. Icons on the windows allow you to do these things. Most windows also have icons which allow you to change their size.



Title bar

The *title bar* displays the title of a window. This may be the name of an application, directory, or a document you're editing. Here's the title bar from the Apps directory display:

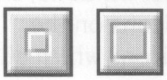
Back icon

Clicking on the *back icon* has the effect of putting a window to the back of the pile of windows on the screen. If you click on this, the window will be hidden behind any windows which overlap the area it occupies.

Close icon

Clicking on the *close icon* closes a window. If you click on this, the window will be removed from the screen.

Toggle size icon



Clicking on the *toggle size icon* switches a window between full size and the last non-full size displayed. (Full size is either large enough to display everything in the window, or such that the window fills the whole screen.)

This alternating action is called *toggling*.

Adjust size icon

Dragging the *adjust size icon* lets you alter the size and shape of a window. Clicking the Select button on it also brings a window to the front of a stack of windows.

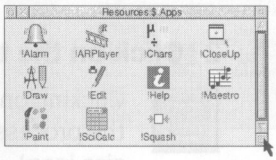
Practising manipulating windows

Practise using the window icons to do the things described on the following pages. You can use the Apps directory display to practise most of this.

Changing a window's size

1 Point at the adjust size icon

Move the pointer to the adjust size icon.

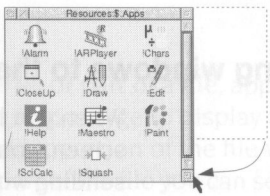


2 Drag the adjust size icon

Press and hold down the Select button. Move the mouse and drag the icon to change the size of the window.

3 Release the mouse button

Release the button when the window is the size you want it to be.

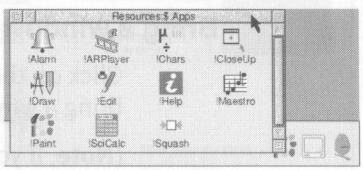


Moving a window

You move a window by dragging its title bar – follow the steps in *Dragging* on page 20.

Off the screen

If you want to you can drag windows almost off the screen; try it!



Over the icon bar

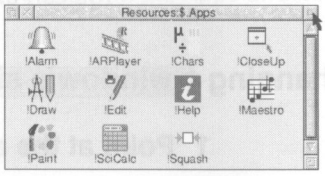
If you've dragged a window so that it obscures the icon bar, hold down the Shift key on the keyboard and press the F12 key. This will bring the icon bar to the front. (Press the same key combination again to send it to the back – this is another instance of toggling).

Toggling window size

1 Click on the toggle size icon

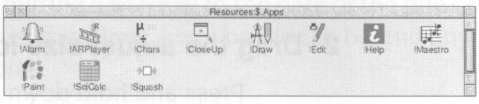
Move the pointer over the toggle size icon and click the Select button.

The window size will snap to nearly the width of the screen.



2 Click on the toggle size icon again

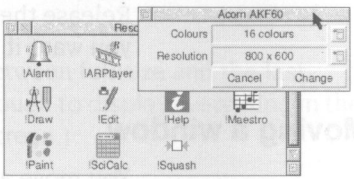
Clicking on the icon again will reverse the process (note the changing toggle size icon).



Bringing windows to the front

When you have a stack of windows on the screen, you can move to the one you want by sending windows to the back or bringing one to the front.

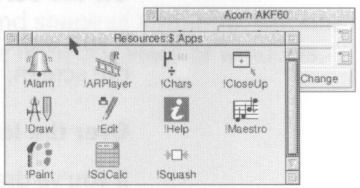
First, click on the Display manager icon on the icon bar to bring up another window. Drag it on top of the Apps directory display.



Bring a window to the front

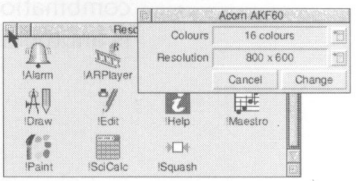
Click on the title bar (or the adjust size icon) to bring a window to the front.

(**Note**: If you want to drag a window without bringing it to the front of a stack, use Adjust instead of Select.)



Send a window to the back

Click on the back icon to send a window to the back again.



Closing windows

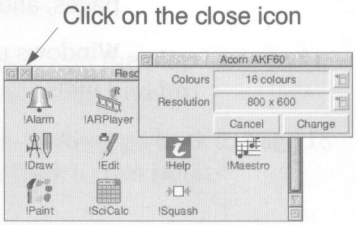
Click on the close icon

Position the pointer on the close icon and click Select.

For example, close the Apps directory display.

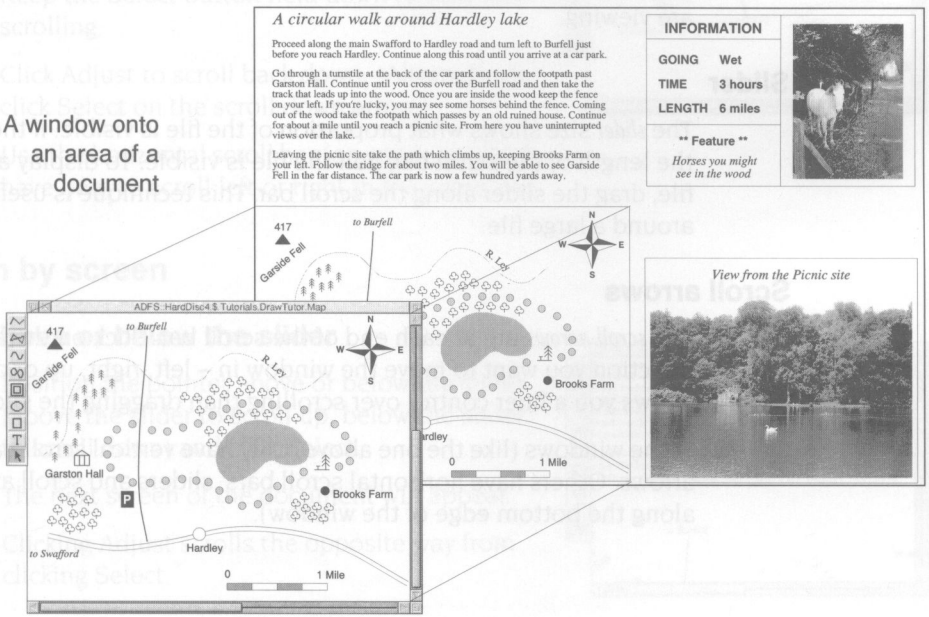
The window will disappear from the screen.

If the window contains unsaved work the application usually asks you whether you want to save the changes. *Saving (and loading) a file* on page 53 tells you how to save files.



Scrolling

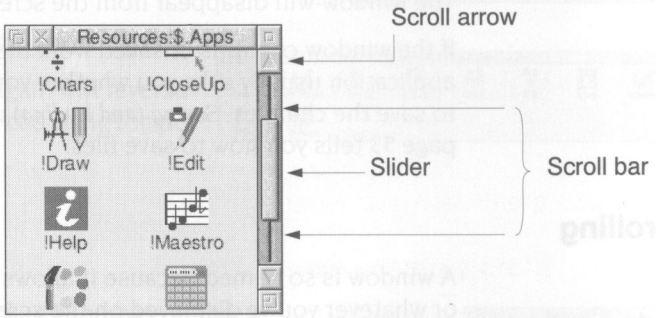
A window is so named because it allows you to see all or part of a file, application or whatever you've displayed on the screen. If a file is too large to display all at once, the window will only show a section of it. The proportion of the file visible depends on the size and shape of the window. The part of the file you can see alters as you move the window around the file:


A window onto an area of a document
A circular walk around Hardley lake
Proceed along the main Swafford to Hardley road and turn left to Burfell just before you reach Hardley. Continue along this road until you arrive at a car park.
Go through a turnstile at the back of the car park and follow the footpath past Garston Hall. Continue until you cross over the Burfell road and then take the track that leads up into the wood. Once you are inside the wood keep the fence on your left. If you're lucky, you may see some horses behind the fence. Coming out of the wood take the footpath which passes by an old ruined house. Continue for about a mile until you reach a picnic site. From here you have uninterrupted views over the lake.
Leaving the picnic site take the path which climbs up, keeping Brooks Farm on your left. Follow the ridge for about two miles. You will be able to see Garside Fell in the far distance. The car park is now a few hundred yards away.
INFORMATION
GOING Wet
TIME 3 hours
LENGTH 6 miles
** Feature **
Horses you might see in the wood
417
to Burfell
Garside Fell
R. Ley
N
W
E
S
ADFS::HardDisc4.$.Tutorials.DrawTutor.Map
Garston Hall
P
Brooks Farm
Hardley
to Swafford
0
1 Mile
View from the Picnic site

The technique of moving the window around a large file is called *scrolling*. You move the window frame over the file, but because the window actually stays in the same position **on the screen**, it appears as though the file is scrolling past the window.

This is not as complicated as it sounds. Try out the techniques on the following pages, and you'll soon get used to moving around large files.

Windows usually have scroll bars and scroll arrows to enable you to move around a file:



Scroll bars

The *scroll bars* allow you to scroll the window over the file, directory or picture you are viewing.

Slider

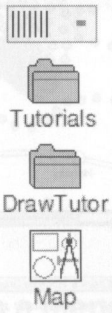
The *slider* size shows what proportion of the file is visible: if the slider occupies half the length of the scroll bar, half the file is visible. To display a different area of the file, drag the slider along the scroll bar. This technique is useful for moving quickly around a large file.

Scroll arrows

The *scroll arrows* are at each end of the scroll bar. Click on the arrow showing the direction you want to move the window in – left, right, up or down. This technique allows you a finer control over scrolling than dragging the slider.

Some windows (like the one above) only have vertical scroll bars, sliders and scroll arrows. Others have horizontal scroll bars, sliders and scroll arrows as well (they're along the bottom edge of the window).

Practising scrolling



In this section you are going to use the Map example file.

To find the file, click on the hard disc icon; this displays the contents of the hard disc. Double-click on the **Tutorials** directory; this displays the contents of the directory. Now double-click on the **DrawTutor** directory.

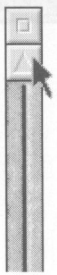
When the directory contents are displayed, double-click on the Map icon, and a window with scroll bars appears, containing some drawings and text.

If you are having problems with clicking and double-clicking, go back to page 18 and review your mouse techniques first, then come back to this point.

Practise the following scrolling techniques:

Scrolling step by step

Click on the scroll arrow

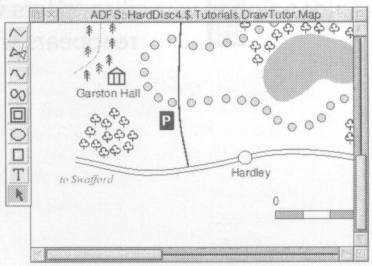


Position the pointer on the scroll arrow and click the Select (lefthand) button to scroll by small steps at a time.

Keep the Select button held down to continue scrolling.

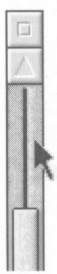
Click Adjust to scroll back down. (Alternatively, click Select on the scroll down arrow.)

Use the horizontal scroll bar (on windows which have one) to scroll left or right in the same way.



Scrolling screen by screen

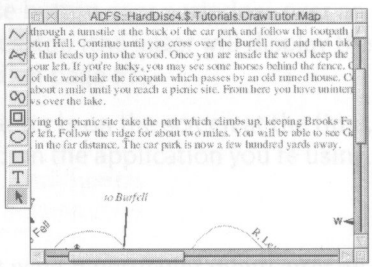
Click above or below the slider



Position the pointer above or below the slider (above the slider to scroll up, below the slider to scroll down) and click Select.

The next screen of the document will appear.

Clicking Adjust scrolls the opposite way from clicking Select.

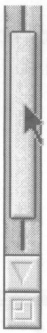


Moving through a file

1 Select the slider

Position the pointer on the slider, press Select **and keep it pressed down**.

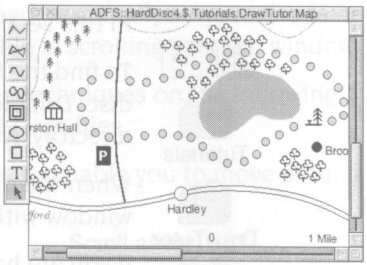
2 Drag the slider

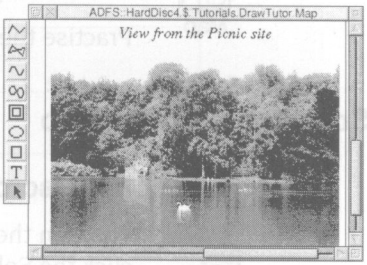


Drag the slider to display the part of the file you want to view.

Move from one **side** of a document to the other by using the horizontal scroll bar (if the window has one).

Note: If you drag either slider with Adjust, you can move both from side to side and up and down at the same time. Try it. (The pointer disappears while you're dragging then reappears when you release Adjust).



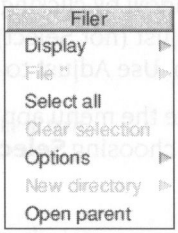


Menus and dialogue boxes

This chapter tells you what menus and dialogue boxes are, how to display them and choose things from them, and how to supply information when the computer asks you to be more specific about what you want.

What is a menu?

A menu in the desktop is similar to a menu in a restaurant – it's a list of things to choose from. In a foreign restaurant, if you can't actually speak the language, you can point at the menu with your finger to tell the waiter which dish you want (assuming that you know what the menu means!). On the computer, you move the mouse to point at your choice from the menu. This is the main way of doing things in the RISC OS desktop.



Menu options shown in grey (like **Clear selection** above) are not available at that time. Often you must perform another action before the option becomes available.

Using menus

To display a menu, click the Menu (middle) mouse button over a window, over an icon on the icon bar, or over a blank area of the desktop (the latter will display the Pinboard menu – see the section entitled *Pinboard* on page 57).

The menu displayed will depend on where the pointer is on the screen at the time, whether you have previously selected an icon, and on the application you're using.

Cancelling an unwanted menu

If you press Menu by mistake, or decide you don't want a particular menu after all, you can make a menu disappear by clicking Select on a blank area of the desktop or icon bar.

Displaying a menu

1 Point to the relevant icon

Move the pointer over the window or icon you're interested in.

For example, click on the Apps icon on the icon bar and move the pointer over the Apps directory display.

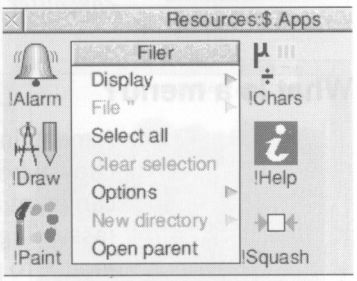
2 Click Menu

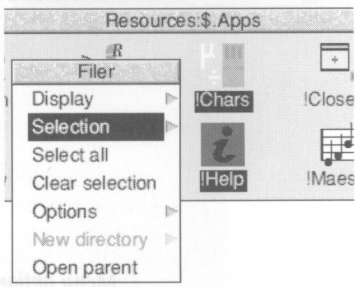
A menu will be displayed (*the Filer menu in this example*).

If the pointer is over a file icon when you click the Menu button (or if you had previously selected an icon by clicking on it) the menu will apply to that individual file.

You can make the menu apply to more than one icon in a window by clicking on each icon in turn with Adjust (not Select) before you bring the menu up. Use Adjust to deselect icons, too.

You can make the menu apply to all the icons in a window by choosing **Select all** from the menu – see below.



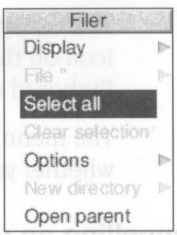


Choosing from a menu

With a menu displayed, click on the option you want (notice that menu options are highlighted as you move the pointer over them).

For example, on the Filer menu you displayed above, point at the **Select all** *option and click Select. All the file icons in the directory display will be highlighted and the menu will disappear.*

To reverse this, repeat the above process, choosing **Clear selection** *instead. Alternatively, click on a blank area of the directory display.*



Keeping a menu on the screen

You'll notice that after you click Select to choose a menu option, the menu then disappears.

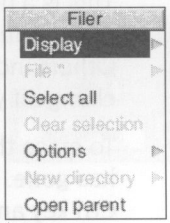
If you click with Adjust instead of Select, the menu will stay on the screen, and you can choose another option.

Choosing from a submenu

1 Highlight the main menu item

Move the pointer onto a main menu item with an arrow. An arrow to the right indicates that a *submenu* is available.

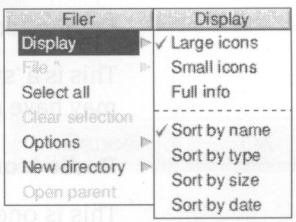
For example, point at the **Display** *option on the Filer menu.*



2 Display the submenu

Move the pointer onto the arrow.

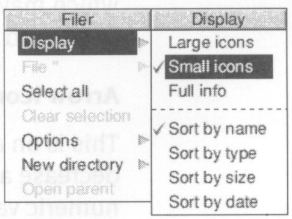
The **Display** *submenu will appear on the screen.*



3 Click on the submenu item

Highlight and make your submenu choice by moving the pointer over it and clicking on it.

Click on **Small icons**. *The icons in the directory display will change size.*



What is a dialogue box?

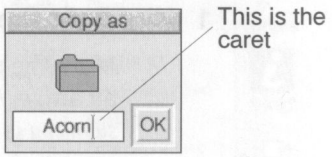
Sometimes related menu options are grouped together in *dialogue boxes*. They're called dialogue boxes because you have to reply to the computer's questions. You'll come across different types of dialogue box as you work through this guide or use applications.

Icons in dialogue boxes

Here are the different icons you'll come across:

Writable menu option

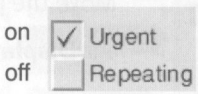
This is a field, containing a *caret*. A caret shows where you can enter text. Some fields are blank. Others include a default name, which you can change if you want to.



To erase the default name, press Delete until it has gone. (A quicker way is to hold down the Ctrl key and press U.)

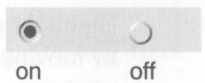
Option icon

This is a 'switch' that can either be on or off. You may have more than one switch on at once.



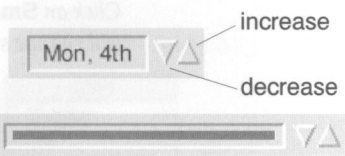
Radio icon

This is one of a group of 'buttons', only **one** of which may be selected at once (like the waveband selection buttons on a radio).



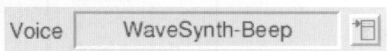
Arrow icon

This is an arrow you click on to increase or decrease any progressive series, such as numeric values, dates, or sliders.



Menu icon

This is an icon which, when you click on it, displays a menu list. Choose an option from the menu list and the choice is reflected in the dialogue box.



Applying the changes you've made

The way you apply the changes you've specified depends on the type of dialogue box. Some dialogue boxes have one or more buttons at the bottom for you to click on (such as **OK** and **Cancel**); others take effect as soon as you click on an arrow or radio icon.

Some dialogue boxes only have a writable menu option (they're usually **Save as:** boxes). There are three ways of applying the name you supply in such a dialogue box:

- press Return
- click on OK
- drag the file's icon from the dialogue box to a directory display.

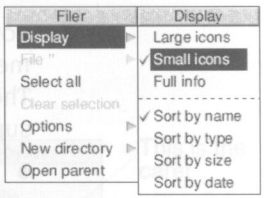
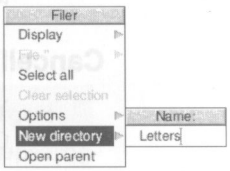
You'll find out more about this in *Files and directories* on page 51.

Cancelling a dialogue box

You can cancel a dialogue box by clicking on the Close icon (if it has one) or the **Cancel** button.

Choosing menu options – conventions in this Guide

Now that you know about menus, here are the conventions we'll use in the rest of this Guide to tell you how to choose menu options and fill in writable menu boxes.

What the manual says	What you actually do	
Move the pointer over the Tutorials directory display, click Menu and choose **Display/Small icons**.	1 Move the pointer over the Tutorial directory display. 2 Click the Menu (middle) button. 3 Move the pointer to the right of the **Display** option. This opens the **Display** submenu. 4 Move the pointer over the **Small icons** option. 5 Click Select to choose the **Small icons** option.	
Move the pointer over the directory display, click Menu and enter `Letters` into the **New directory/Name:** writable menu box.	1 Move the pointer over the directory display. 2 Click the Menu (middle) button. 3 Move the pointer to the right of the **New directory** option. 4 Use the Delete key to erase any existing default name. 5 Type in the name `Letters` for your new directory. 6 Click Select over the **New directory** writable menu box (or press Return) to enter the name.	

Discs and disc drives

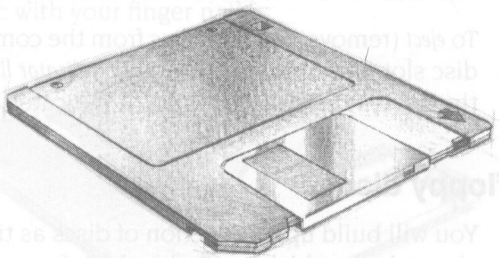
This chapter tells you how to use and take care of your discs and disc drives, and how to format and make backup copies of discs.

Floppy discs and hard discs

You can store information and programs on hard or floppy discs.

Floppy discs

Your computer uses 3.5 inch floppy discs. They look like this:



You can obtain floppy discs from your computer supplier. *Floppy disc storage sizes* on page 37 tells you which discs to ask for. Before you use them, you'll have to *format* them (see *Formatting a floppy disc* on page 38).

You put the discs into the floppy disc drive (see *Inserting and ejecting floppy discs* on page 36). The drive can only take one disc at a time.

The floppy disc icon is on the lefthand side of the icon bar.

Hard disc

A hard disc is fitted to your computer. The amber light on the front panel of the computer will come on when the hard disc is active.

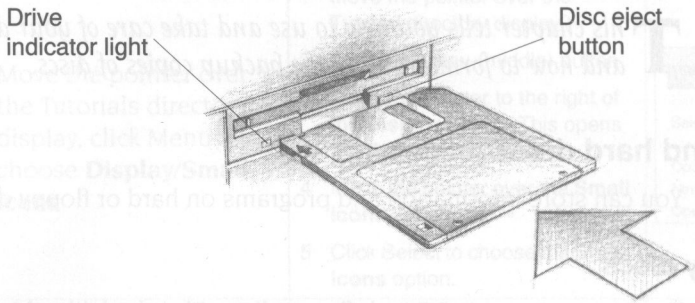
A hard disc can hold a lot more information than a floppy disc, and the computer can find information on it a lot faster.

The hard disc icon is on the lefthand side of the icon bar.

Inserting and ejecting floppy discs

The floppy disc drive is behind the flap on the front of the computer. There's a picture of the front of the computer on page 75.

Insert the disc into the floppy disc drive like this, with the label uppermost:



The disc clicks into place when it is fully inserted.

To *eject* (remove) a floppy disc from the computer, press the *disc eject button* below the disc slot, but only when the *drive indicator light* is off. Don't try to eject a disc when the drive indicator light is on; it indicates that the drive is still running.

Looking after floppy discs

You will build up a collection of discs as time passes. Label them so that you always know which one holds the information you need. Store them carefully and keep them away from

- extremes of temperature
- strong magnetic fields (e.g. TVs or loudspeakers)
- dust, dirt, drinks, pets etc.

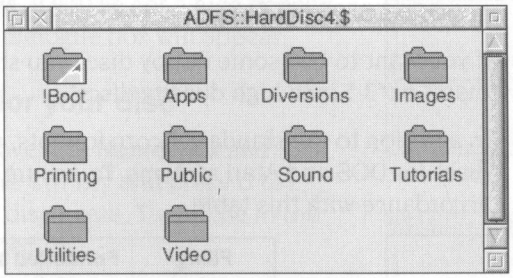
Don't open the metal shutter on the disc, as the disc surface is easily contaminated by dust and small particles. For this reason, it's not a good idea to write on the labels in pencil: small pieces of pencil lead can easily get onto the disc surface.

Accessing information on discs

To see what's on a floppy disc, insert it into the floppy disc drive and click on the floppy disc drive icon on the icon bar.

Click on the hard disc icon to access information stored there.

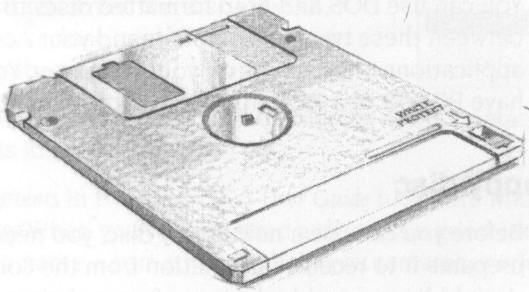
When you click on the hard disc icon, the contents of the disc will be shown in a directory display:



Write-protecting a floppy disc

If you *write-protect* a floppy disc, it means that you cannot change anything on the disc, delete anything by mistake, or save any new files to the disc. You should write-protect discs containing any information you don't want to lose (and don't want to change at present).

To write-protect a disc, move the plastic tab (on the underside of the disc) towards the edge of the disc with your finger nail:



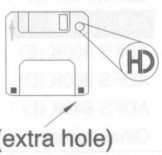
Remove write-protection by moving the tab back again.

Floppy disc storage sizes

Floppy discs are a bit like audio cassettes – they both store (or record) information. Some audio cassettes hold more information than others (for instance, a C90 holds more than a C60) even though they are the same physical size.

This is the same for floppy discs – the discs your computer uses are called "3.5 inch discs", but are available in different **storage** sizes.

High density



You can use the following sizes of floppy disc with your computer:

- *high density* floppy discs, holding 1.6 *megabytes* (1.6MB) when formatted (Acorn ADFS 1.6M format).

Double density

- *double density* floppy discs, holding 800 *kilobytes* (800KB) when formatted (Acorn ADFS 800K (E) format)

If you want to buy some floppy discs you should ask for "3.5 inch double density discs" or "3.5 inch high density discs".

In addition to the standard Acorn formats, your computer can also format and use discs for DOS and Atari systems. To ensure reliability only format discs in accordance with this table.

Filing system	Formatted size of disc	Disc density required	
RISC OS	1.6MB	high	HD
RISC OS	800KB	double	DD
DOS	1.44MB	high	HD
DOS	720KB	double	DD
Atari	720KB	double	DD
Atari	360KB	double	DD

You can use DOS and Atari formatted discs to transfer data and information between these types of computer and your Acorn computer. You cannot run Atari applications or programs on your computer. You can only run DOS programs if you have PC Soft or a PC hardware expansion card. See your supplier for more details.

Formatting a floppy disc

Before you can use a new floppy disc, you need to format it. Formatting a disc prepares it to receive information from the computer. This is rather like drawing straight lines on a blank piece of paper before you start writing on it. It tells the computer where to put the information – it writes along the lines (called *tracks*). Formatting also tells the computer how much information a floppy disc can hold.

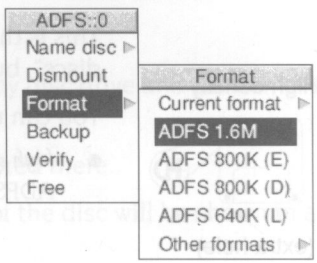
Warning!: When you format a disc, any information that was previously stored on it is permanently lost. So, don't reformat a disc unless you are certain that you no longer require the data stored on it.

1 Make sure the disc is NOT write-protected

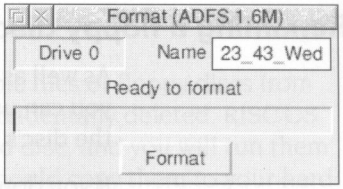
2 Insert the disc in the floppy disc drive

3 Display the Format dialogue box

Move the pointer over the floppy disc drive icon on the icon bar, and click Menu.

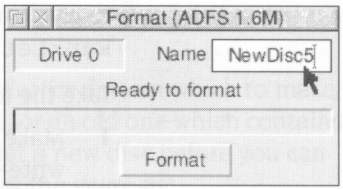


Choose **Format/ADFS 800K (E)** (or **Format/ADFS1.6M**, if you've got a high density disc). The Format dialogue box will appear:



4 Decide on a name for your disc

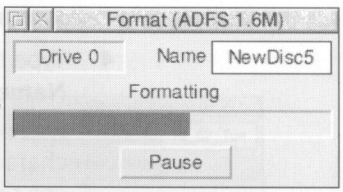
Move the pointer over the **Name:** box and click, then hold down the Ctrl key and press U to delete the default disc name. Then type in the name you've decided on.



If you don't supply a name the computer will give the disc a name based on the date and time. See *Renaming a floppy disc* on page 40 for information about disc names allowed.

5 Format the disc

If you're sure you want to format the disc, click on **Format**.



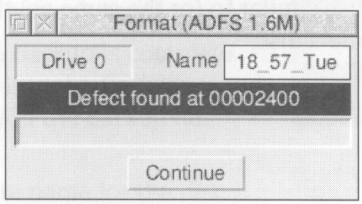
If you don't want to format the disc after all, simply click on the close icon of the dialogue box to abandon the operation.

During formatting, an indication of the progress of the operation is displayed. When the disc is formatted, click on **OK**.

Discs and filing systems in the RISC OS 3 *User Guide* has more information about formatting discs. When you've formatted a disc, it's a good idea to stick a label on it and write on a name – something to help you remember what is on the disc.

Disc errors

If, while formatting is in progress, you get a message that looks like this



then the chances are your floppy disc is faulty. If you click on **Continue**, the computer will attempt to 'map out' any defects (no information will be stored on the faulty parts of the disc). You can use a disc with such defects, but there's always the chance it may prove faulty in the future. So if you can afford to, it's probably best if you throw the disc away and use another one.

Renaming a floppy disc

As well as writing the disc's name on a sticky label so that **you** know what it's called, you can use the computer to name the disc electronically (so the **computer** knows the disc's name too).

If you don't choose names for your floppy discs when you format them, the computer will give them default names of the form `12_43_Tues`. It's a good idea to give your floppy discs names which will help you remember what's on them (like `BankLetter` or `Some_Pics`).

Take the following steps to rename a floppy disc:

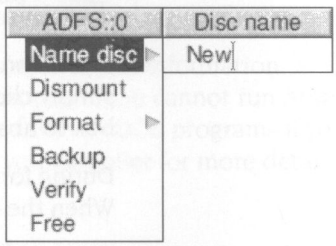
1 Make sure the disc you want to rename isn't write-protected.

2 Put the disc into the floppy disc drive.

3 Move the pointer over the floppy disc drive icon and click Menu.

4 Type the new disc name in the **Name disc/Disc name** menu option.

Note: The name must be at least 2 characters up to a maximum of 10, but you can't use any spaces, or the characters $ & % @ \ ^ : . # * " |.



5 Click on the name, or press Return.

The disc now has a new name. To see it, click on the floppy disc drive icon on the icon bar. A directory display will appear, with the new name in the title bar. Remember to write the disc's name on its label.

Note: Always make disc names unique. You won't then get confused if the computer asks to see a particular disc. Also, make the name you physically write on the disc similar to (or the same as) the electronic name you type in when you rename a disc.

Making backup copies

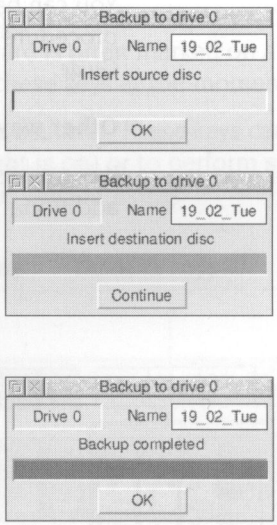
It is a good idea to make a *backup* copy of any valuable files or floppy discs from time to time, in case a disc is damaged or a file is accidentally deleted. RISC OS applications are supplied ready installed on the hard disc, and you will run them from there. When you buy other applications, you should copy them to your hard disc for use, and keep the original discs safe.

Backing up a floppy disc

You'll need a blank formatted disc (known as the *destination disc*) on which to make the backup copy. You can either use a brand new disc, or an old one which contains information you no longer need. You'll need to format a new disc before you can use it as a backup disc. It must be the same format as the *source disc*.

Take the following steps to make a backup copy of a floppy disc:

1. Write-protect the source disc (containing your valuable information) but not the destination (empty) disc.
2. Put the source disc into the floppy disc drive.
3. Click Menu on the floppy disc drive icon on the icon bar and choose **Backup**. You'll see the Backup dialogue box.
4. Click on **OK** to start the backup. The computer will read the source disc.
5. Follow the rest of the instructions until backing up is complete – the computer will ask you to swap the source disc and destination disc while it transfers information between them (click on **Continue** each time you've done it).
6. Click on **OK** when the backup is complete (a message will appear in the Backup dialogue box telling you the backup has finished).
7. Choose an appropriate name for the disc and write it on the disc's label.



For more information on backing up floppy discs, and for quicker ways of doing it, see *Discs and filing systems* in the RISC OS 3 *User Guide*.

Backing up files from a hard disc

If you have any files on your hard disc that you can't afford to lose, it's a good idea to keep backup copies of them on a floppy disc, in case your hard disc develops any errors. This can happen during the lifetime of a hard disc, but don't worry, it's not usually catastrophic! The RISC OS 3 *User Guide* tells you what to do if you do get any errors from your hard disc.

Copying individual files and applications to a floppy disc

Format a blank floppy disc, and copy any important files from your hard disc onto it (see *Copying (and moving) a file to another directory* on page 55). Then rename your floppy disc to remind you what's on it.

You can increase the amount of data that can be stored on a disc by compressing it using the Squash application. Refer to the *Squash* chapter in the *User Guide* for more details.

Backing up your hard disc to floppy discs

You can back up all or parts of your hard disc onto floppy discs using the backup procedure explained in the *Discs and filing systems* chapter of the RISC OS 3 *User Guide*.

Other ways

It is possible to purchase specialist backup hardware, such as tape drives and additional disc drives. Contact your supplier for more information.

Using the keyboard

This chapter describes the keyboard and its functions.

A quick tour of the keyboard

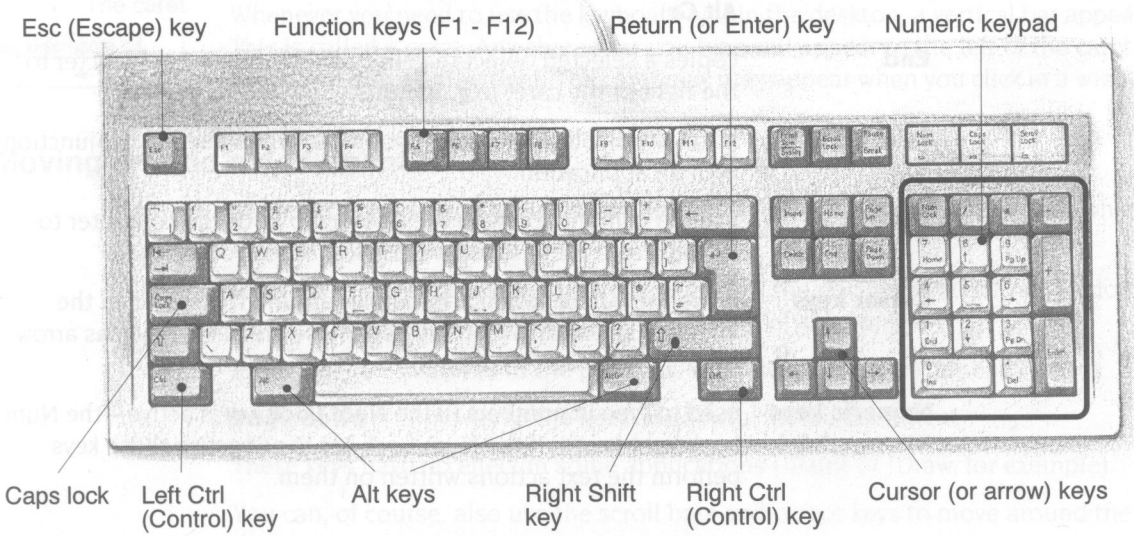
The illustration on this page shows how the keys are laid out on the keyboard. This chapter describes the main features of the keyboard, and tells you how to use the different groups of keys.

The keys are divided into the following blocks:

The *typewriter keys* are in the main block, and are similar to a typewriter keyboard.

The *function keys* (marked F1 to F12) are in a row above the typewriter keys. The function of these keys in a particular piece of software is often marked on a card supplied with the software. You don't need to use these keys at the moment.

The *numeric keypad* is at the far right, laid out like a calculator. These keys can be used either to type numbers (when the *NumLock* light is on) or to perform special functions, depending on the program or application you are using.



The keyboard

The *computer control keys* have different functions, depending on the software with which they are being used. Useful keys to know about are:

Esc (*Escape*) at the top left of the keyboard cancels an operation (e.g. printing).

Function keys (marked F1 to F12) are in a row above the typewriter keys. The function of these keys in a particular piece of software is often marked beside a menu option, or on a keycard.

Delete deletes a character to the left of the caret (e.g. in Edit) or deletes a selected object (e.g. in Draw).

↵ **Return** completes a line, either starting a new line of text, or sending a name or instruction to the computer.

Caps Lock (when on) makes everything you type appear in capitals. If you don't want this, press the key once.

⇑ **Shift** changes the meaning of a key, when held down while that key is pressed. For example, holding down ⇑ (Shift) and pressing a letter causes that letter to appear in upper case (there are two of these keys).

Ctrl (Control) changes the meaning of a key, when held down while that key is pressed (there are two of these keys).

Alt changes the meaning of a key, when held down while that key is pressed (there are two of these keys, the right key is labelled **Alt Gr**).

End copies a selected object (e.g. in Draw) or deletes a character to the right of the caret (e.g. in Edit).

Print Scrn normally displays the print option box when used in conjunction with an application.

Break used in conjunction with the Ctrl key to force the computer to restart itself. All unsaved work is lost when you do this.

Cursor keys move the cursor (when it is visible) around the screen in the direction of the arrow on the key. These are also known as arrow keys.

Numeric keys used to type in numbers (if the **Num Lock** key is active – the Num Lock light is on). If the Num Lock key is not active these keys perform the text actions written on them.

Special key combinations

Sometimes you need to press more than one key. In such cases:

1 Press **and hold down** all except the last key in the sequence.
2 Press and release the last key in the sequence.
3 Release all the other keys.

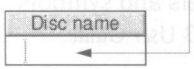
For example:

- 'Press Shift F12' means press and hold down the Shift key, then press and release F12, then release Shift.
- 'Press Ctrl Shift F12' means press and hold down the Ctrl, and Shift keys, then press and release F12, then release Ctrl, and Shift.

When to use the keyboard

You will need to use the keyboard for many tasks, such as

- supplying answers to questions the computer asks in writable menu boxes (including giving names for files and documents you create)
- using a word processor, or a text editor like Edit (for an example of this, see *Using applications* on page 47)
- choosing some menu options using keyboard shortcuts (for example F3 to **Save** a file)
- entering data in a spreadsheet or database.



Whenever you need to use the keyboard within the desktop, a vertical bar appears. This is called a caret. Any characters you type will appear to the left of the caret, which will move to the right. The caret may only appear when you click in a window.

Moving around a document

Some other keys allow you to move around long documents. Try these out when you are using an Edit document.

Home	moves the caret to the start of the document (the End key does not move the caret to the end of a document)
Page up	moves to the previous 'windowful' of the document
Page down	moves to the next 'windowful' of the document

These keys have no effect in some applications (!Paint or !Draw, for example).

You can, of course, also use the scroll bars and cursor keys to move around the document.

Typing special characters

Sometimes you need to be able to type special characters that are not apparently on the keyboard, such as accented characters, or symbols like ©. You can in fact get at lots of extra characters using the Alt key. The keyboard map at the bottom of this page shows all the characters that are available. Here's how to type them:

Typing accented characters

Some of the keys on the figure below are marked with a black area in the lower right corner. These keys allow you to type accent characters. The accent in each case is the character nearest the black area of the key.

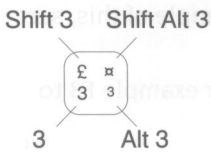
For example, to type an 'e' with an acute accent (é):

1 Whilst holding down the Alt key, press and release the [key.

2 Release the Alt key.

3 Press and release the E key.

Typing other special characters



You can type the other special characters shown in the keyboard map using the instructions shown on the left.

For example, to type a ¤ symbol:

1 Hold down the Shift and Alt keys, press and release the 3 key.

2 Release the Shift and Alt keys.

The application !Chars also lets you insert many special characters and symbols into your document. For more information, refer to the RISC OS 3 *User Guide*.

Special Characters: Keyboard Map

Using applications

This chapter tells you how to load and run applications on your computer. It *uses the application* Edit *as an example.*

What are applications?

Applications, like Edit or Draw, are the tools that you use to produce your letters, drawings, music and so on. Application names always start with an exclamation mark (!). For example, !Draw.

Some applications (such as Edit) are provided in the Apps directory on the icon bar, there are other applications on the hard disc. Many other applications and games are available from your supplier.

Starting an application

There are three main ways you can start an application:

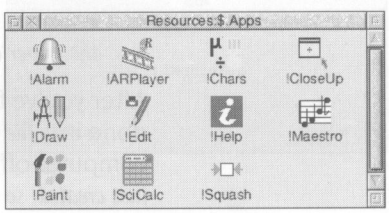
- Double-clicking – move the pointer over the application's icon, and double-click.
- Dragging – move the pointer over the application's icon, then drag it onto the icon bar, and release.
- Double-clicking on an associated file – e.g. double-click on a Draw file to start Draw. This only works if the computer knows where to find the application (i.e. if it is in the Apps directory, like Draw or Edit, or if the directory containing its icon has been displayed since you last switched on).

1 Open the directory display containing the application directory

To use an application that is on a floppy disc, put the disc in the floppy drive and click on the floppy disc drive icon. This will open the root directory display for the disc.

To use one of the computer's own applications, like Edit, click on the Apps icon on the icon bar to show the Apps directory display.

Try this now as an example.



2 Start the application

Double-click on the application's icon. It will appear on the icon bar, ready for you to use.

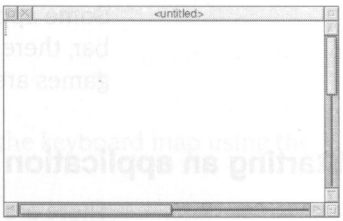
For example, double click on !Edit. *Its icon will appear on the icon bar, indicating that it has been loaded into the computer's memory, and is waiting for you to use it.*

Some applications or games (like !Chars) open a window as soon as you double click on their icon, instead of appearing on the icon bar.

Using applications

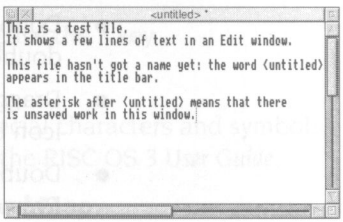
Once you have started an application, you can usually begin using it by clicking on its icon on the icon bar. An *application window* will open on the desktop.

To use Edit, *click on its icon on the icon bar: an empty* Edit *window will appear, ready for you to start writing.*



Type in some text. Any text you type using the keyboard appears in the window. Text appears to the left of the vertical bar – the caret. The caret moves to the right, to make room for the text.

Press the Return *key to start a new line, and press it again to leave a blank line.*



Once you have typed a few lines of text, move the caret around the text by moving the pointer with the mouse and clicking Select *– the caret will jump to the position of the pointer. You can insert (or delete) text at the new position.*

If you aren't sure what the different keys on the keyboard are for, refer to Using the keyboard *on page* 43. *A couple of points to note:*

- *The* Caps Lock *key light may be on when you start, indicating that all letters you type will be capitals. Press this to get all lower-case letters.*
- *When the* Caps Lock *is off, hold down the* Shift ⇑ *key to type an upper-case letter (or one of the upper characters on the number keys).*

After you've finished using an application, you will need to *save* any work you've done in a *file* on a disc (otherwise your work will be lost when you switch the computer off). *The next chapter,* Files and directories, *tells you how to save the* Edit *file you've just created, so you can leave its window on the screen for now.*

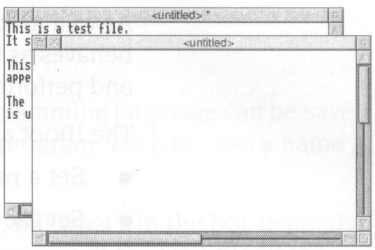
Using more than one application window

Often you'll have more than one application window open on the desktop. You can only enter information (e.g. write some text, or draw a picture) in one window at a time. To change the window you are working in, move the pointer over your chosen window and click Select. You'll notice that the title bar and other window icons will change to a light shade of yellow, indicating that the *input focus* is now in that window. *Input focus* means you can now type into the window.

For example, click on Edit's icon on the icon bar to bring up a second Edit window. The input focus will be in the second window.

Now click on some text in the first Edit window to change the input focus.

Close the second (empty) window. You don't need it now.



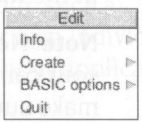
Quitting applications

When you've finished using an application, you'll usually want to *quit* it. To quit an application:

1 Display the application's icon bar menu

Click Menu over the application's icon on the icon bar.

For example, try this on Edit's icon.



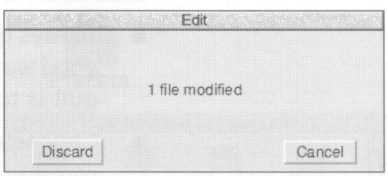
2 Choose Quit

Click on the **Quit** option.

If you've already saved everything you've done in the application, its icon will disappear from the icon bar.

If you've forgotten to save any work, the computer will remind you, and ask if you really want to quit, discarding any changes.

In this case, you have not yet saved your work in Edit. So, click on **Cancel** *to leave Edit running. You'll find out how to save your work in the next chapter.*



The Boot application

If you were writing a letter by hand, you would need to know where to find the *resources* to write it (paper, envelope, pen etc). The computer uses different types of resources, and also needs to know where to find them. They are contained in the *system application* !Boot.

Normally you just ignore the !Boot application; it just resides in the main directory and controls the applications and the fonts that you use.

As well as looking after the system !Boot also controls the way your computer behaves as it starts up. It enables you to start up certain applications automatically and perform tasks each time the computer is switched on.

The !Boot application also lets you:

- Set a password so that other users cannot write to the hard disc
- Set the number of discs in the system
- Set the default network file server (if you are connected to a network)
- Set mouse, keyboard and memory parameters
- Set the behaviour of the desktop windows
- Add more fonts to those already used in the computer.

The chapters *Setting the desktop configuration* and *Setting the system start-up configuration* in the RISC OS 3 *User Guide* describes how to use !Boot in detail.

Note: Never try to delete !Boot. !Boot is one of the most important applications on your computer; without it your computer will not operate correctly. You should make sure that you save a copy of !Boot on a floppy disc or on hard disc (with a different name) before you start changing any configuration parameters within !Boot.

Saving Memory

Getting the best out of 2MB, 3MB *and* 4MB *computers* in the RISC OS 3 *User Guide* gives you some hints on how to get the most out of the memory available on your machine. For instance:

- Always quit applications if you're not using them – they take up memory. A good way to make sure there is no memory 'tied up' by an application you've quit is to restart the computer – see *Switching off the computer* on page 65.
- Choose a screen display that doesn't use much memory. *Desktop colour and resolution* in the RISC OS 3 *User Guide* gives you some hints to follow.

Files and directories

This chapter explains how you can store information in an organised way, copy it, and delete it when you no longer need it.

Files and directories

Everything you create using an application or programming language can be saved as a file, whether it consists of text, graphics or a program. Each file has a name – you have to provide one when you save a new file.

File icons usually have a square box around them, but what's in the box depends on what sort of file it is. Double-clicking on a file's icon will load the file (if the application to display it is available).

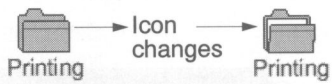
Files are stored in *directories*. A directory can contain many files, and also other directories (*subdirectories*) and applications. Directory icons usually look like folders, to indicate that they can contain files or other directories.

There is a special sort of directory called an *application directory*. Its name always begins with a '!', and it contains an application program, such as a word-processor, or a drawing package. Applications usually have their own individual icons; the icon given here is the icon for !Draw. There is more about applications in the previous chapter and in the RISC OS 3 *User Guide*.

Opening directory displays

1 Open a directory display

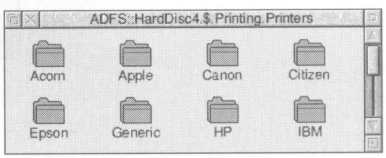
For example, double-clicking on the Printing *directory opens the directory and the* Printing *directory icon changes to the open directory icon.*



The resulting directory display shows various applications, including a directory called Printers.

2 Open a subdirectory

Double-click on the Printers *directory, and the* Printers *directory display will appear. This contains files (in this case, printer definitions used with the* !Printers *application).*



Double-clicking on an application

Double-clicking on an **application** directory loads the application, usually onto the icon bar ready for use. See the previous chapter for more on this.

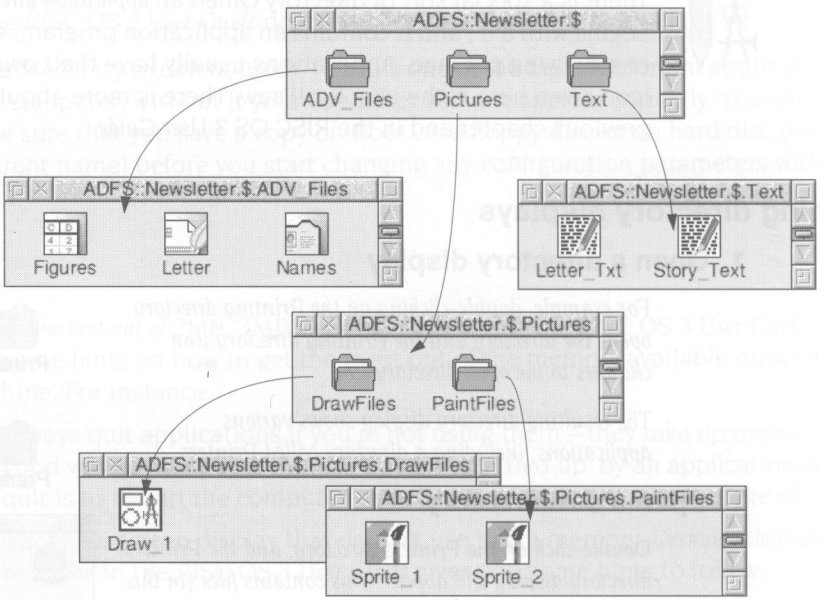
Three refinements you might find useful later on:

- Double-clicking Adjust on a sub-directory icon opens the sub-directory display and simultaneously closes the directory display it came from (the *parent*). This reduces the number of windows on the desktop.
- Double-clicking Adjust on an application icon will simultaneously load the application and close its directory display.
- Clicking Adjust on the close icon closes a directory display and simultaneously opens its parent directory.

Building a file structure

You need to organise your files carefully. If you leave them all in the main directory on the disc, it will soon become large and unwieldy. You are also limited to having no more than 77 files, directories and applications in a directory.

Build up a file structure with files of similar types grouped in directories. For instance, the file structure of a disc for a newsletter might look something like this:



To create a structure like this, you'll need to create directories, and save, copy or move files into them. You'll be able to do this by creating a new directory on the hard disc and saving your files there.

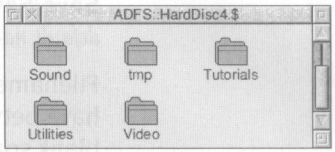
A fuller description of the *filing system* is given in the RISC OS 3 *User Guide*, in the chapter *Discs and filing systems*.

Creating a new directory

1 Open a directory display

Decide where you want to create the new directory, and open a directory display.

For example, click on the hard disc icon on the icon bar.

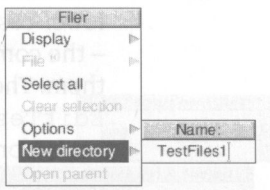


2 Enter a name for your new directory

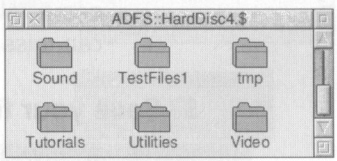
Move the pointer over the directory display, click Menu to display the Filer menu.

Type in a name for your new directory in the **New directory/Name:** writable menu box and click on it (or press Return).

Call it `TestFiles1`*, for example.*



An icon for the new directory will appear in the directory display.

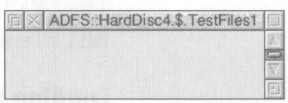


Saving (and loading) a file

1 Open the directory display

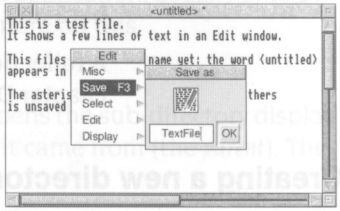
Decide on the directory in which you want to save your file, and double-click on its icon to open a display for it.

For example, double-click on the `TestFiles1` *directory you've just created.*



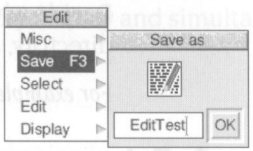
2 Give your file a name

Move the pointer over the work you want to save and press Menu to display the application menu. Enter a name in the **Save as:** dialogue box.



For example, try this on the Edit file you created in the last chapter.

Click Menu and enter the name `EditTest` *in the* **Save/Save as:** *dialogue box (you'll need to erase the default name* `TextFile` *using Delete).*



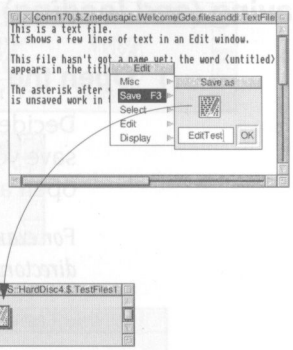
Filenames and directory names on disc can have between one and ten characters, but **not** blank spaces or the characters $ & % @ \ ^ : . # * " |.

You can use upper-case (capitals) and lower-case letters wherever you like in the name – the computer makes no distinction between them. The only reason for calling your file `EditTest` instead of `edittest` is that it's easier for you to read.

If you've saved this file before (the correct file name will appear on the box if you have) you can miss out the next step – just press Return.

3 Save your file

To save your file, drag the file icon in the dialogue box into the directory window and release the Select button.



For example, save your file `EditTest` *in your* `TestFiles1` *directory. Then quit the file* `EditTest` *(click on the Close icon).*

Loading a file

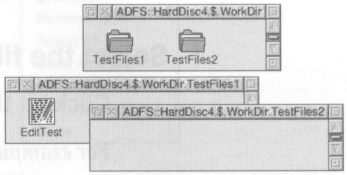
You can **load** a file by double-clicking on its icon (as long as the relevant application is either in the Apps directory, or its icon has been displayed on the screen since you last switched on the computer).

Copying (and moving) a file to another directory

1 Open the destination directory display

If you haven't already done it, open the directory you want to copy the file into.

For example, create another new directory called `TestFiles2` *(follow the instructions in Creating a new directory* on page 53*). Open the new directory, so both* `TestFiles1` *and* `TestFiles2` *are displayed.*



2 Select the file to be copied

Click on the icon of the file you want to copy.

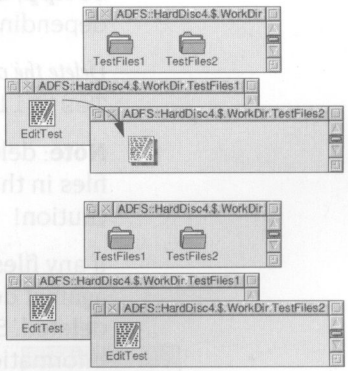
You can select two or more files in the same directory display by clicking on their icons with Adjust (or by choosing **Select all** from the menu). Use Adjust to deselect icons, too.

3 Copy the file to the new directory

Drag the file's icon into the new directory display.

For example, drag the file `EditTest` *onto the directory* `TestFiles2`.

The file will be copied into the new directory. A copy of the icon will appear in the directory display when this has been done.



Moving a file

To *move* a file (so that the original is not retained in its original location), hold down Shift during steps 2 and 3 above.

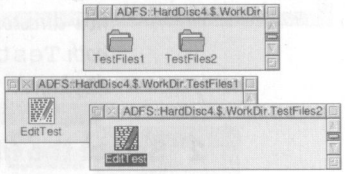
Deleting files and directories

Warning: once you have deleted a file or directory, you can't get it back again, so use this option with caution!

1 Select the file or directory to be deleted

Click on the icon of the file you want to delete.

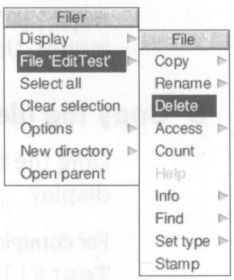
For example, select the copy of `EditTest` *in directory* `TestFiles2`.



(You can select multiple files by clicking on their icons with Adjust, or by choosing **Select all** from the Filer menu.)

2 Delete the file or directory

Keeping the pointer over the same directory display, click Menu to display the Filer menu and choose the **File/Delete** option (this might be **App**, **Dir** or **Selection** instead of **File**, depending on what you've selected).



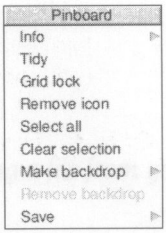
Delete the copy of file `EditTest` *from the* `TestFiles2` *directory.*

Note: deleting a directory also deletes all the files in that directory, so use this option with caution!

If any files (or directories) have been *locked* against deletion, they will not, in fact, be deleted. See the RISC OS 3 *User Guide* for information on *file access* and removing *file locks*.

Pinboard

If you click Menu over a blank area of the desktop, you will see a menu called **Pinboard**.



Don't worry too much about this at the moment. It's explained in the RISC OS 3 *User Guide*, and enables you to do things like

- changing the whole background of the desktop into a picture
- leaving file or application icons 'stuck' to the desktop background, so you can see and use them, even when the directory they came from is closed
- closing a window down to an icon on the background.

You might come across one use of Pinboard when you are dragging files (for example) from one directory to another. If you let go of the Select button accidentally while the file you are dragging is over a blank portion of the desktop, its icon will stay on the background.

You can remove the 'dropped' icon from the background as follows:

1 Display the Pinboard menu

Move the pointer over the dropped icon and click Menu.

2 Remove the icon

Choose **Remove icon** from the menu. If that option is greyed out, it means that the pointer wasn't quite over the icon when you clicked Menu. Try again.

This action does **not** delete the file itself – the icon stuck on the pinboard is merely a 'pointer' to the real file on your disc.

Printing

This chapter gives you an introduction to printing a file from your computer. It uses an Acorn JP-150 printer as an example.

Once you've used an application to produce some work, you'll probably want to print out what you've done. This chapter takes you through each stage involved in printing a file, from setting up the computer to producing a printed page.

This chapter assumes that you have already

- connected your printer to the computer (using the parallel port, in the case of the Acorn JP-150) using the correct cable (see *Setting up the computer* on page 7 and *Adding external devices* on page 79)

  Note: Printer cables longer than about 5m can cause problems.
- set any options on the printer itself (check in the manual supplied with the printer whether you need to change any settings)
- switched the printer and computer on. If you haven't, you can find out how to do this in *Switching on* on page 9
- put some paper in the printer.

Follow the instructions in this chapter carefully, and you shouldn't have any trouble printing your work. If you do get into difficulties, see *Problems with printing* on page 64 or check with your supplier.

Setting up

Before you can print anything, you need to make sure that the computer knows what sort of printer it is connected to. These are the steps involved:

!Printers

- Loading the *printer manager* application (!Printers).
  This is an application which controls the printing process.

JP-150

- Loading a suitable *printer definition file*.
  This is a program which tells the computer what type of printer you're using.
- Setting the correct Configure and Connection options using !Printers.
- Activating the printer (though this is not always necessary).
- Saving the printer options.

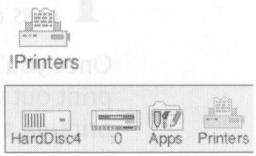
The following pages take you through this setting up process in detail.

1 Display the applications directory

!Printers is stored in the **Printing** directory. Click on the hard disc icon and then double click on the **Printing** directory to display its contents.

2 Load !Printers

Load !Printers by double-clicking on its icon.



After a few seconds its icon will appear on the lefthand side of the icon bar, ready to use.

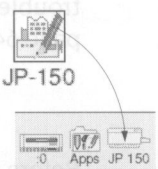
3 Load a printer driver

Open the directory called **Printers** in the directory display.

Open the subdirectory which corresponds to the make of your printer (*in this case, Acorn*).

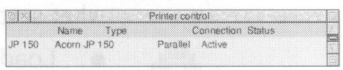
You'll then see a directory display containing all the available printer definitions.

Decide which printer definition suits your printer. Load it by dragging its icon onto the printer icon on the icon bar. This loads the printer and displays the Printer control window. (If you can't see a printer driver that matches your printer, see *Problems with printing* on page 64).



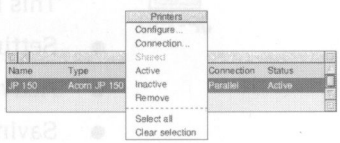
In this case, load the driver called JP-150, *which is specifically for the Acorn* JP-150 *printer.*

The Printer control window shows details of the printer definition you've just loaded, and so does the icon on the icon bar.

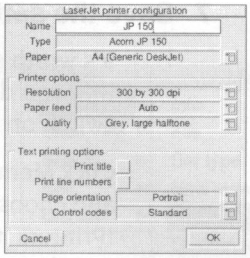


4 Set the printer configuration options

Click Select on the printer's name in the Printer control window (this will highlight it) then click Menu. This will display the Printers menu.



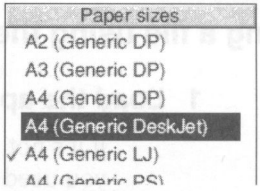
Choose **Configure** to display the configuration dialogue box.



Change any settings that aren't correct (refer to the manual supplied with your printer).

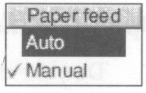
The only options you'll need to worry about for now in this window are **Paper**, **Resolution**, **Paper feed**, and **Quality**.

Set **Paper** to be A4 (Generic DeskJet) by clicking on the menu icon to the right of the box and choose A4 (Generic DeskJet) from the list.



If you have a computer with 2MB or more memory you can increase the printer **Resolution** to 300 x 300 dpi. This will give better quality printed output.

If your printer has a sheet feeder you should set the **Paper** feed choice to **Auto**.

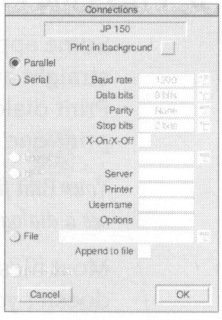


When the settings are correct, click on **OK**.

(Experiment with the other options when you want a better quality print of your work.)

5 Set the Connection options

Click Menu on the printer name in the Printer control window to display the Printers menu again. This time choose **Connection...**. You'll see the Connections window displayed.

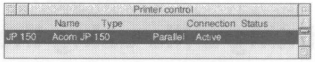


Click on the button to the left of the connection that your printer uses.

In the case of the JP-150 *choose* **Parallel**.

Click on **OK**. The details in the Printer control window will change to reflect your choice.

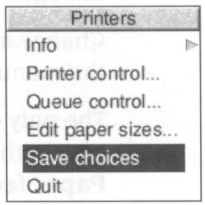
6 Activate the printer (if necessary)



Choose **Active** from the Printers menu (you'll only need to do this if you drag **more** than one printer definition onto the Printer control window – the first printer is set to active by default).

7 Save the settings

It's worth saving the printer configuration so that you don't have to set it up every time you switch on the computer.



Click Menu over the printer icon on the icon bar and choose **Save choices**. Next time you load !Printers it will automatically start up with this saved configuration.

Printing a file using the Print Scrn key on the keyboard

1 Load the application

If it's not loaded already, load the application you used to create the file.

2 Open the file you want to print

Double-click on a file to open it.

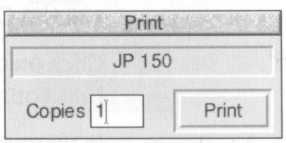
If it's not open already, open the `TestFiles1` *directory that you created in the previous chapter. Open the file* `EditTest`.

EditTest

3 Press the Print Scrn key on the keyboard

Some applications (like Edit) will print a file straight away at this point (others will display a Print dialogue box – click on **OK** or **Print** to print one copy).

A typical Print dialogue box



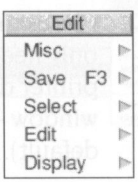
Your Edit file should print out fairly quickly – you won't see a dialogue box.

Most files should print out correctly, if yours doesn't you will have to print it using the Print option on the application's menu.

Printing a file using the Print option

1 Display the application menu

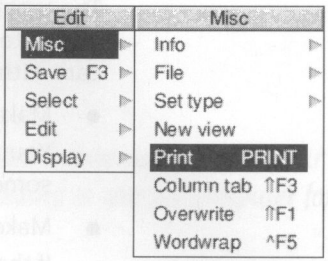
Click Menu inside the file's window.



Do this in the window for `EditTest`.

2 Choose the Print option

The **Print** option is not always in the top-level menu of an application. You may have to search through the submenus to find it.



Again, you might see a Print dialogue box, or your file might print straight away, depending on the application.

In this case, choose **Misc/Print**. *Your file should print out, but if things don't appear to be working, try some of the hints at the end of this chapter.*

Another way of printing

You can often print a file by dragging its icon and dropping it on the printer icon bar icon.

1 Load the application

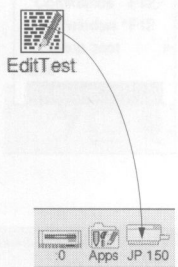
If it's not loaded already, load the application you used to create the file.

2 Display the file's icon

Open the directory containing the file you want to print.

3 Print the file

Drag the file's icon over the printer icon on the icon bar and release the mouse button. Your file will print out.



Try this with the file `EditTest`.

Not all applications allow you to print this way, however. Check either in the RISC OS 3 *User Guide*, or the manual supplied with the application.

Problems with printing

The most common problems with printing occur in the setup stage. If your computer thinks it is connected to the wrong printer, you will have trouble. Take care with the following when you set up:

- Make sure that you're using the correct cable, and that it's not too long.
  You might get problems if the cable is longer than about 5m. This can sometimes cause spurious characters to be printed.
- Make sure you use the correct printer driver.
  If there isn't one that matches your printer, you'll probably still be able to print – most printers have an Epson- or IBM-compatible mode. Check in the printer's manual if this is the case, and then choose one of the Epson or IBM printer drivers.
- Make sure that the configuration that you've chosen can actually be used by the printer. If in doubt, try a lower resolution.
- Make sure that you have set the options correctly in the **Printers** menu and the Connections and Configuration windows.
- Make sure the printer is on-line ready to be used (not all printers have this option - check in your printer's manual) and hasn't run out of paper.

If you want to know what all the options in the **Printers** menu are for, or anything else about printing, see the chapters entitled *Printing your files* and *Setting up for printing* in the RISC OS 3 *User Guide*.

Switching off the computer

This chapter describes the correct procedure to follow before switching off your computer (do this at night, or if you're not intending to use the computer for a few days).

Normal shutdown procedure

When you've been doing some work on the computer and want to switch it off, you **can** simply switch off using the On/Off switch on the front of the computer. **However**, you'll lose any unsaved work this way.

By following the instructions in this chapter, you can switch off the computer more 'gracefully'. This will ensure that you don't lose any work, and that the computer is in a safe state before you turn off at the switch.

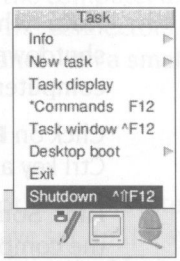
1 Save your work

Make sure that you save any work you have been doing, or you might lose it (see *Files and directories* on page 51).

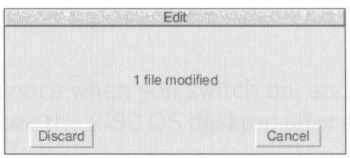
2 Shut the computer down

Move the pointer over the Task manager icon (the Acorn) and click Menu.

Choose **Shutdown** from the menu.

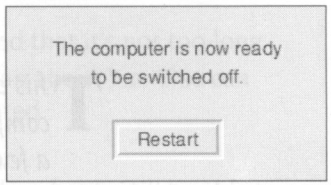


The computer checks to see whether you have left any work unsaved. If you have, a window will appear, asking you if you really want to quit the relevant application.



If you're sure you want to quit, click on **Discard** (to discard any changes). If you want to save your work before you switch off, click on **Cancel**, save the work, then choose **Shutdown** again.

The computer will perform any 'tidying-up' operations necessary, such as quitting any applications, logging off any networks to which you may be connected, and parking the hard disc drive heads.



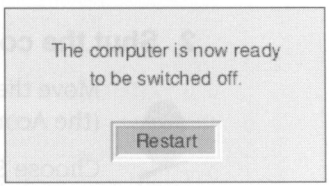
A window will appear when this has happened, telling you that the computer is ready to be switched off.

(If you now decided not to switch off, you could restart the computer. Click on **Restart** to do this).

3 Switch off the computer and peripherals

Remove any floppy discs from the disc drive. Switch off the computer at the On/Off switch on the front.

Switch the monitor off (unless it was plugged into the power outlet on the back of the computer and switched off with the computer). If you have any other peripherals connected to your computer, check in the manuals supplied with them to see whether you need to switch them off every time you switch off the computer.



Note: When the window appears telling you shutdown has completed, you can restart the computer instead of switching off.

Click on **Restart** to do this, or hold down the Ctrl key and press the Break key.

Hint: Some applications do not give up all of the computer's memory they've used when you quit them. This is a good way of 'reclaiming' that memory.

If things go wrong

This chapter offers solutions to some problems you might encounter while you are getting started with your computer. If none of these help, consult your supplier.

No picture

Check that

- the screen has not simply blanked as a result of the Screen blanker being in effect; if this is the case, moving the mouse or pressing the space bar will restore the display
- the power supplies to computer and monitor are connected
- the monitor is connected to the computer, using the correct cable, the right way round
- the computer is turned on
- the monitor is turned on
- the brightness control on the monitor is not turned down.

Check that the connectors between the monitor and the computer are tight. Switch off both the computer and the monitor, and push in the connectors firmly. Tighten the screws of the connector to the computer back panel with a small flat-bladed screwdriver.

Different screen display

If the computer starts up with a different display, or other unexpected things occur while you are using it, you (or someone else) may have set up the system configuration in a different way. You may need to change the *Monitor Type*. To do this, see *Monitor configuration* on page 109.

Flashing floppy drive light

If the floppy drive indicator light flashes more than once when you switch on, and the computer doesn't power up properly (you can't see the RISC OS desktop after a few seconds) consult your supplier.

If the light only flashes once, this is normal. It should happen every time you switch on or reset the computer.

Pointer won't move

If moving the mouse does not move the pointer, check that

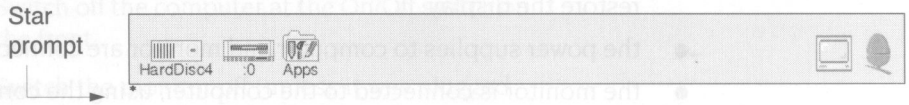
- the mouse is firmly connected to the socket on the back of the computer
- the surface you are using the mouse on is firm enough to allow the mouse ball to move. Move the ball with your fingers to check that the mouse works.

You might need to clean the mouse ball. See *Cleaning the mouse* on page 71.

If all this fails, try holding down Ctrl and pressing the Break key to start the computer up again.

The pointer is not visible on the RISC OS desktop

If the pointer is not visible at all, check whether the command line (with * *prompt*) is at the bottom of the screen (you might have accidentally pressed F12):



If it is, press Return to get back to the Desktop.

If the computer powers up in Supervisor mode

If the computer powers up in Supervisor mode (the word `*SUPERVISOR` will appear at the top of a black screen) type `Desktop` at the prompt, then press Return. If this happens every time you switch your machine on, ask your supplier for help.

The desktop disappears

You may have used the Exit option on the Task Manager menu and exited from the desktop completely. Type Desktop and press the Return key. The desktop will return, but you will have lost any unsaved work. It's best to restart the computer by holding down Ctrl and pressing the Break key.

The computer 'forgets' its configuration

If the computer frequently forgets its configuration settings, or the clock consistently loses time, it may be that you haven't used the computer for a long time and the computer's internal CMOS RAM support battery may need recharging. Leave the computer switched on for a couple of hours, then try again.

If this doesn't cure the problem, the computer's internal CMOS RAM support battery may be faulty. Take the computer to your Acorn supplier, who will investigate.

The self-test does not complete properly

If you do not see a message *similar* to the following when the self-test is performed:

```
RISC OS 4M
Acorn ADFS
```

or if the self-test does not complete properly (the screen may stay red or dark grey after you switch on, and the floppy drive indicator light may flash on and off a few times), then contact your supplier. There may be a fault with the computer's hardware.

Note: The number in the above message (4M) indicates memory size and may differ according to your model of computer.

There are unexpected icons on the otherwise empty desktop

You might have dragged a file or application towards the icon bar, but accidentally let go too soon. See *Pinboard* on page 57.

If somebody else has been using your computer, they may have set it up so that it loads some files and applications automatically.

An application won't load

There may not be enough memory to load the application. Depending on how much memory your computer has, you will need to remove one or more of the applications that are already loaded into its memory. Move the pointer over an icon on the icon bar and press Menu; choose **Quit** to remove the application from the computer's memory. Now try loading the application you want to use. If there still isn't enough space, remove another application you don't need.

Maintaining your computer

This chapter tells you more about looking after your computer and its internal battery. It describes how to clean the computer and the mouse.

Cleaning the computer, monitor and keyboard

First, remember to follow the *Guidelines for safe operation* at the very beginning of this guide. In particular, switch off and unplug the computer and any peripherals.

You can clean the computer case by wiping it gently with a soft, slightly damp cloth. Clean the keyboard with a clean, dry paintbrush. For advice on cleaning the monitor, refer to the manual accompanying it.

Cleaning the mouse

You should use the mouse on a surface that is as clean and as dust-free as possible. However, dust does sometimes get caught up in the ball on the underside of the mouse.

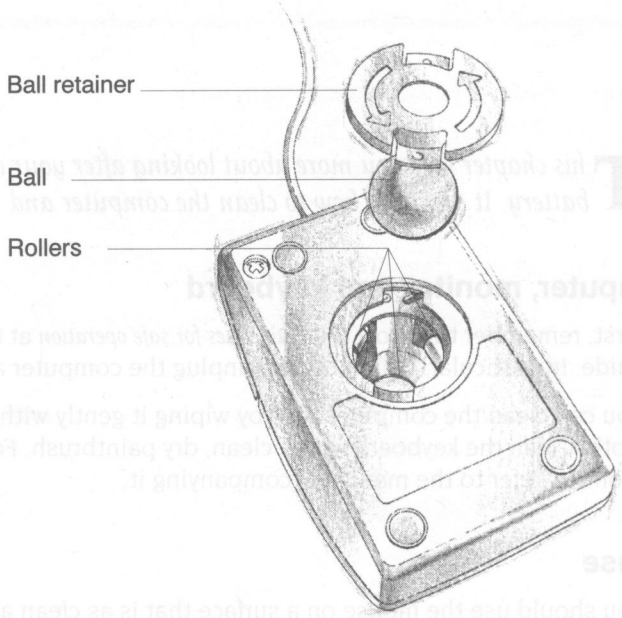
Clean the mouse occasionally to keep it running smoothly. To clean the mouse, you need the following items:

- some tape head cleaner
- a cotton swab
- a lint-free, dry cloth.

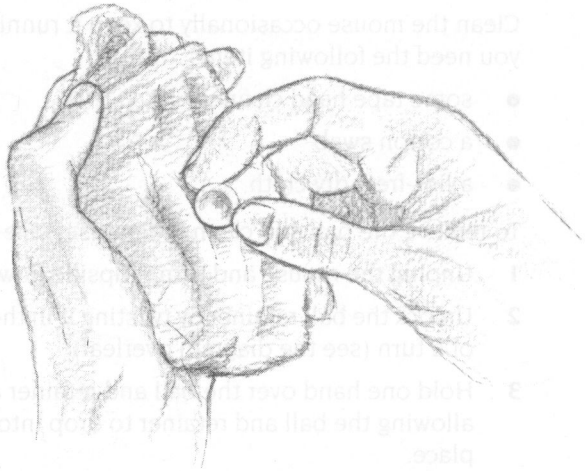
To remove the ball and clean the mouse, take the following steps:

1. Unplug the mouse and turn it upside down.
2. Unlock the ball retainer by twisting it in the direction of the arrows by a quarter of a turn (see the diagram overleaf).
3. Hold one hand over the ball and retainer and turn the mouse right side up, allowing the ball and retainer to drop into your hand. Set them aside in a safe place.
4. Locate the three plastic rollers as shown in the drawing overleaf.
5. Lightly moisten the cotton swab with tape head cleaner and apply it gently to the rollers. Rotate the rollers, carefully cleaning off any dust or dirt that may be clinging to them.

6 Make sure the inside of the mouse is free from dust.



7 Wipe the ball with the clean, dry cloth. Do not use a cloth which may leave lint, and do not use cleaning liquid on the ball.



To replace the ball and retainer, take the following steps:

1 Turn the mouse upside down and place the ball back in the case.

2 Return the retainer to its original position (lock it in place by twisting it clockwise by a quarter of a turn).

The internal battery

While it is switched off, the computer 'remembers' the time and other useful information such as its 'configuration' (features like how fast the pointer moves when you move the mouse). For more information on configuring your computer, see the RISC OS 3 *User Guide*.

To support this memory, the computer uses an internal battery which is charged while the computer is switched on. Ideally, to maintain the battery at full charge, the machine should be switched on for at least one hour in each five-day period. However, the battery does not need to be fully charged in order to work, and will in fact maintain the computer's clock and configuration for as long as six months while the computer is not being used. If your computer is switched off for this long, leave it on for a few hours the next time you use it.

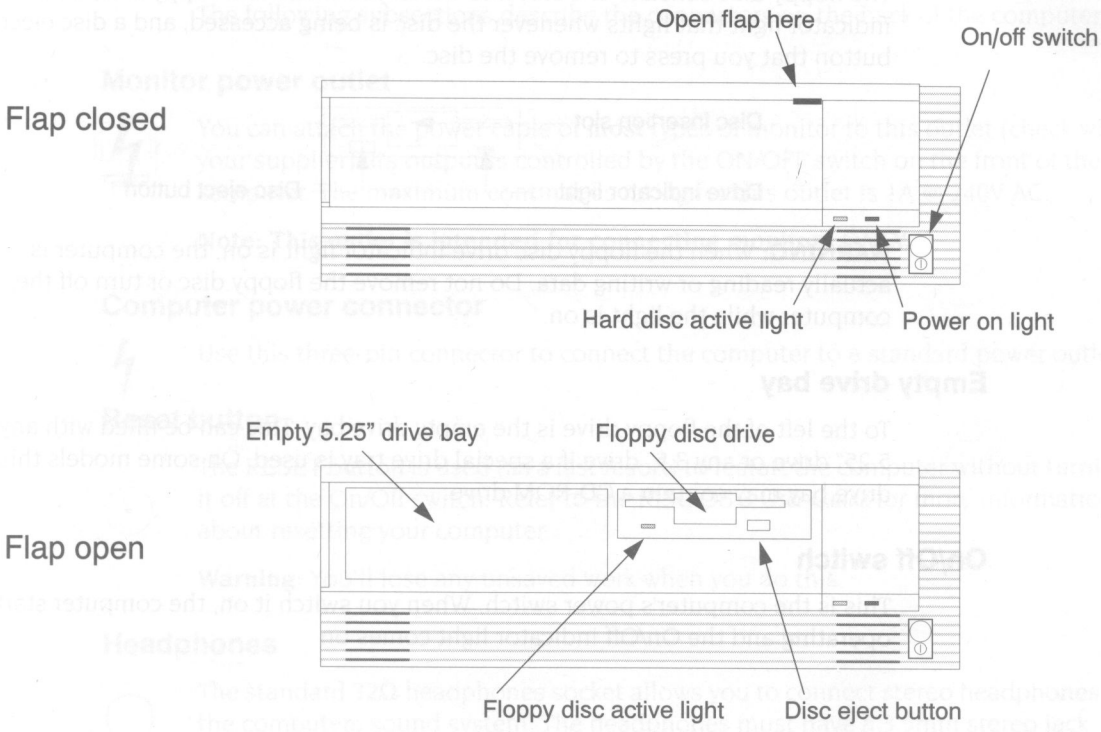
In the course of time (after a few years) the battery, like a car battery, may run down. You can tell when this has happened by the fact that the computer will frequently 'forget' its configuration and the computer's clock will show the wrong time. You should then take the computer to your Acorn supplier, who will install a new battery.

Exploring your computer hardware

This chapter describes the hardware components of the computer, and gives details about the connections of the different sockets.

The front of the computer

The drawing below shows the front of the computer.



Power on light

This green light comes on when you turn the computer on.

Hard disc active light

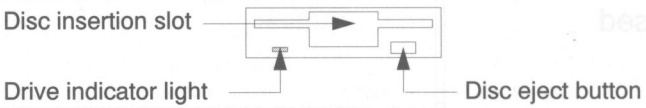
The amber light only comes on when the internal hard disc drive is being accessed by the system.

Roll down flap

This flap hides the drive units during normal use, if you need to access the drive units, just roll down the flap. The righthand drive bay contains the floppy drive and the lefthand drive bay is empty. The internal hard disc is not accessible.

Floppy disc drive

The floppy disc drive is located behind the roll down flap on the righthand side. The floppy disc consists of a slot into which you insert the floppy disc, a drive indicator light that lights whenever the disc is being accessed, and a disc eject button that you press to remove the disc.



WARNING: When the floppy disc drive indicator light is on, the computer is actually reading or writing data. Do not remove the floppy disc or turn off the computer while the light is on.

Empty drive bay

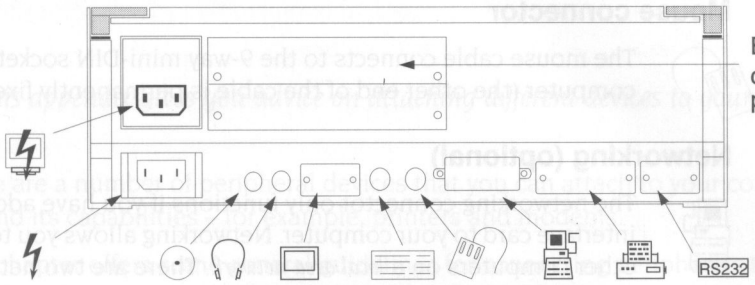
To the left of the floppy drive is the empty drive bay. This can be filled with any 5.25" drive or any 3.5" drive if a special drive tray is used. On some models this drive bay may contain a CD-ROM drive.

On/Off switch

This is the computer's power switch. When you switch it on, the computer starts operating and the On/Off indicator light comes on

The back of the computer

The drawing below shows a typical view of the back of the computer.



The following subsections describe the connectors on the back of the computer:

Monitor power outlet

You can attach the power cable of **most** types of monitor to this outlet (check with your supplier). Its output is controlled by the ON/OFF switch on the front of the computer. The maximum continuous rating for this outlet is 1A @ 240V AC.

Note: This outlet is intended for connecting monitors ONLY.

Computer power connector

Use this three-pin connector to connect the computer to a standard power outlet.

Reset button

The RESET button is used (as a last resort) to restart the computer without turning it off at the On/Off switch. Refer to the RISC OS 3 *User Guide* for more information about resetting your computer.

Warning: You'll lose any unsaved work when you do this.

Headphones

The standard 32Ω headphones socket allows you to connect stereo headphones to the computers sound system. The headphones must have a 3.5mm stereo jack plug. When you plug in the headphones, the internal speaker is disconnected.

Video

The video socket is used to connect your monitor to the computer. If you have a non-standard monitor you may need an adaptor plug.

Keyboard connector

The keyboard cable connects to the mini-DIN socket on the back of the computer.

Mouse connector

The mouse cable connects to the 9-way mini-DIN socket on the back of the computer (the other end of the cable is permanently fixed to the mouse).

Networking (optional)

The networking connector only functions if you have added a network expansion interface card to your computer. Networking allows you to connect the computer to other computers on a *local area network*. There are two network cards available from your dealer:

Econet network card is used to connect the computer with other Acorn computers on the Econet local area network.

Ethernet network card is used to connect the computer to an Ethernet network. The Ethernet network card allows connection to the thin-Ethernet cable.

Parallel printer

A parallel printer connects to the 25-way socket on the back of the computer. Parallel and serial printers are discussed in the chapter entitled *Adding external devices* on page 79.

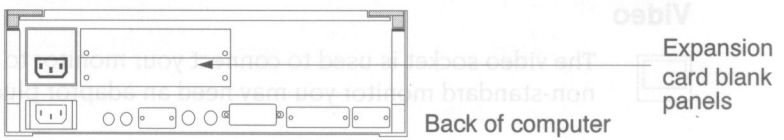
Serial port

The serial port on the back of the computer is a 9-way plug. A serial device to be connected here needs a 9-way D-type socket on the end of its lead. Refer to the documentation accompanying your particular package for information on how to wire the lead to be used with the serial port. There is also some information in the chapter entitled *Adding external devices* on page 79.

Expansion card blank panels

The blank panels cover any expansion card slots not in use. It's not a good idea to operate the computer with these removed.

Expansion cards make your computer more versatile. Ask your supplier about expansion cards that might be useful to you.



Adding external devices

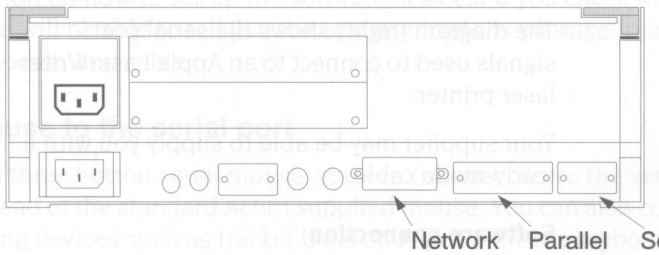
Introduction

This appendix gives you advice on attaching different devices to your computer.

There are a number of peripheral devices that you can attach to your computer to expand its capabilities – for example, printers and modems.

This chapter offers some general guidelines for connecting peripherals to your computer. Some examples are given for attaching specific peripheral devices, but often you'll need to use the general information provided to help you decide how to connect a device. For example, the signal connection diagrams that are given for each hardware connection act as guidelines which will work with most hardware. Some or all of the connections shown with dotted lines may be unnecessary, and you must first check the manual accompanying the peripheral device that you are connecting.

There are three ports available on your system that are used to attach peripheral devices: the Serial port, the Parallel port and the Network port.



The characteristics of each of the above ports are described in the following sections along with information about the types of devices that can be connected to them.

Serial port

RS232

The serial port is by far the most versatile and sometimes the most troublesome port to use. It is mainly used to connect your computer to other computers, printers and modems or to connect a serial pointing device such as a serial mouse.

Parallel port

The parallel port is commonly used to connect a printer, or to send and receive data to and from another device.

There is a diagram of the parallel port pinout in *Connector pin-outs* on page 117.

Printers on the parallel port

Hardware connection

You need a 25-way D-type connector to connect a parallel printer to the computer. Often, the cable supplied with your printer will be suitable. If not, the table below gives an example of how the pins on the computer's parallel port map onto a 36-way Centronics-type Delta 57 connector.

The mapping is not one to one. The signals you need will depend on the type of printer, and the settings of any switches on the printer. As a general guide, most printers will work without the signals marked Optional.

In the first instance, ask your supplier to make sure he gives you the correct cable. Check the printer's documentation for more information.

Computer		Printer
1 (STROBE)		1
2 (DATA0)		2
3 (DATA1)		3
4 (DATA2)		4
5 (DATA3)		5
6 (DATA4)		6
7 (DATA5)		7
8 (DATA6)		8
9 (DATA7)		9
10 (ACK)		10
11 (BUSY)		11
18 to 25	GND	19 to 30
Optional		
12 (PE)		12
13 (SLCT)		13
14 (AUTO FD XT)		14
15 (ERROR)		32
16 (INIT)		31
17 (SLCT IN)		36

Hardware connection

Your supplier should be able to supply you with a ready-made cable which will work with your communications package.

If this is not possible, you may need to make an adaptor cable to connect a modem or other standard RS232 DCE device. Here is the wiring guide for connecting to a standard RS232 25-way D-type connector:

Computer	Modem
1 (DCD)	8 (DCD)
2 (RXD)	3 (RXD)
3 (TXD)	2 (TXD)
4 (DTR)	20 (DTR)
5 (0V)	7 (0V)
6 (DSR)	6 (DSR)
7 (RTS)	4 (RTS)
8 (CTS)	5 (CTS)
9 (RI)	22 (RI)

In practice you may leave out RI, as it is not often used. If the modem doesn't provide a CTS signal, leave it out and instead connect CTS to RTS at the computer end.

If you are connecting a different type of modem from the one illustrated, the differences will be in which signals the modem looks at and can supply. You can configure some modems to use or ignore the various control signals, by means of DIP switch settings or by sending commands.

Software connection

For information on how to set up the software, it's best if you check with your supplier, who will be able to tell you the communications package to use that best suits your modem and cable.

Connecting a mouse to the serial port

If you have a three button serial mouse, you can connect this to the serial port and use this instead of the standard Acorn supplied mouse. You can also connect other serial pointing devices such as tracker balls and special needs keyboards.

You will also need to configure your system software to use these devices. See *Setting the desktop configuration* in the RISC OS 3 *User Guide* for more information.

There is a diagram of the serial port pinout in *Connector pin-outs* on page 117.

Parallel port

The parallel port is commonly used to connect a printer, or to send and receive data to and from another device.

There is a diagram of the parallel port pinout in *Connector pin-outs* on page 117.

Printers on the parallel port

Hardware connection

You need a 25-way D-type connector to connect a parallel printer to the computer. Often, the cable supplied with your printer will be suitable. If not, the table below gives an example of how the pins on the computer's parallel port map onto a 36-way Centronics-type Delta 57 connector.

The mapping is not one to one. The signals you need will depend on the type of printer, and the settings of any switches on the printer. As a general guide, most printers will work without the signals marked Optional.

In the first instance, ask your supplier to make sure he gives you the correct cable. Check the printer's documentation for more information.

Computer		Printer
1 ($\overline{\text{STROBE}}$)		1
2 (DATA0)		2
3 (DATA1)		3
4 (DATA2)		4
5 (DATA3)		5
6 (DATA4)		6
7 (DATA5)		7
8 (DATA6)		8
9 (DATA7)		9
10 ($\overline{\text{ACK}}$)		10
11 (BUSY)		11
18 to 25	GND	19 to 30
Optional		
12 (PE)		12
13 (SLCT)		13
14 ($\overline{\text{AUTO FD XT}}$)		14
15 ($\overline{\text{ERROR}}$)		32
16 ($\overline{\text{INIT}}$)		31
17 (SLCT IN)		36

Software connection

Printing on page 59 tells you how to configure your computer to use a Acorn JP-150 printer. You'll find more information in *Printing* in the RISC OS 3 *User Guide* and the manual supplied with your printer.

Network port

You can purchase special Econet and Ethernet networking hardware that connects directly to special connectors inside the computer. If these are fitted, they connect to the outside world via the Network port.

Econet connection

If you have an Econet network card fitted to your computer, you can directly connect your computer to the network. You will need a 15-way D-type to 5-Pin DIN cable. The 5-pin DIN cable connects directly to your standard Econet wall socket.

Ethernet connection

If you have an Ethernet network card fitted to your computer, you can connect your computer to your Ethernet local area network.

You may have a converter box to convert the signal from the network port to that required by the Ethernet interface. Refer to the instructions that accompany your network card to find out how to connect your computer to your Ethernet network.

Opening the computer

You should receive fitting instructions for upgrades when you buy them from your supplier. However, to be able to fit them, you first need to know how to open the computer's cover and what to look for inside. This chapter tells you how to take the top cover off and how to partially dismantle the computer case.

You can open your computer in two stages. You can just remove the top cover, giving you access to the floppy disc drive and spare drive bay. You can also remove the upper section of the computer completely, giving you access to the circuit board.

Before removing the top plastic cover of the computer

1 switch off the computer

2 remove the power lead from the wall socket.

Do not reconnect the power lead to the wall socket until you have replaced the cover of the computer.

Do not make any adjustments inside the computer while the power lead is connected to the wall socket.

Acorn Computers Limited cannot accept any liability for damage done to the product during the installation of internal upgrades whether or not carried out in accordance with the instructions in this chapter. If you don't feel confident about carrying out any of the instructions in this chapter, ask your supplier to fit upgrades for you (a charge may be levied by the supplier for installing any upgrades; such a charge shall be entirely at the discretion of the supplier concerned).

Before you start

You'll need a firm, flat, non-slippery surface to work on. For example, cover a table with a woollen blanket (a synthetic blanket could cause a static electrical discharge which would damage the computer). If you have expansion cards in your computer you will also need a small flat-bladed screwdriver.

Make a note of everything that you disconnect or take apart so that you can put it back together again easily when you have finished your modifications.

1 Shut down and switch off the computer and any peripherals connected to it following the instructions in *Switching off the computer* on page 65.

2 Remove the computer power cable from the power outlet on the wall.

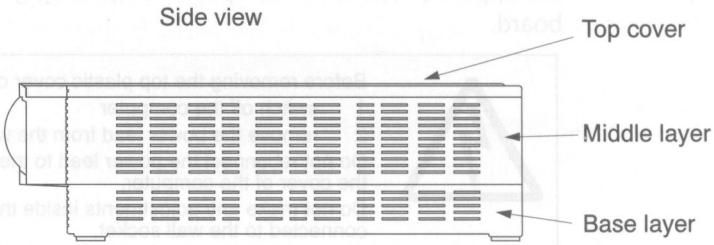
3 Remove the monitor power cable from the power outlet on the computer.

4 Remove all other cable connections from the back of the computer. Make a note of where they connect to so that you can replace them easily. If you need help refer to the setting up information starting on page 7.

5 Make sure you have easy access to all parts of the computer. If you need to move the computer to give yourself better access, you should carefully disconnect any peripherals connected to the computer. Keep a note of how the peripherals connect to the computer.

Identifying the layers

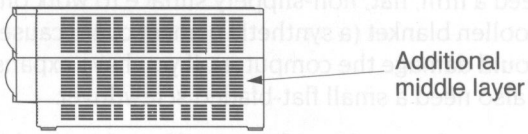
Turn the computer so that you are looking at the side of the computer. The computer is divided into layers:



- The base layer containing the power supply, the circuit board and the hard disc.
- The middle layer containing the floppy disc drive, controls and switches and an empty slot for an additional drive unit.
- The top cover (the lid).

Additional middle layers

Some computers contain an additional middle layer into which can be added one or two further drive units and one or two further expansion cards.



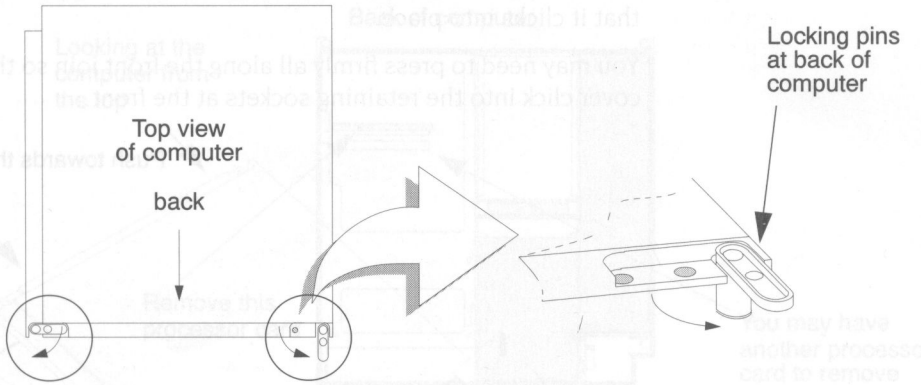
The instructions in this chapter refer to computers with only one middle layer. Opening computers with two middle layers is very similar.

Removing the top cover

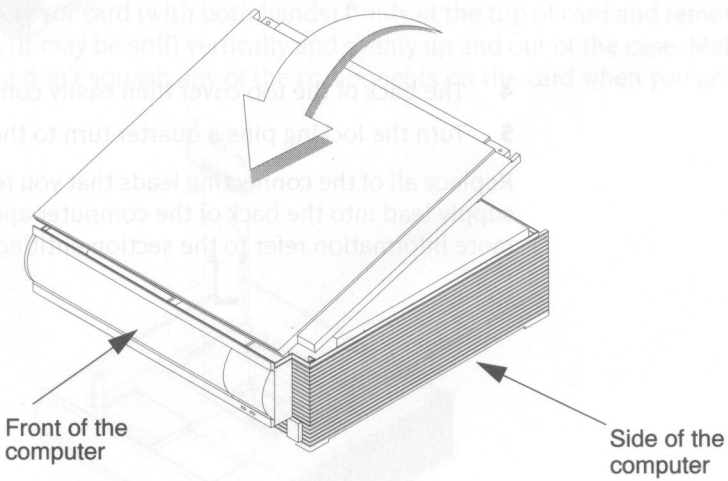
To remove the top cover:

1 Position the computer so that you are looking at the back of the computer. If you are using a tower configuration you will have to remove the tower feet first.

2 Find the top of the rear locking pins and turn them a quarter turn towards you. They should now be sticking out.



3 Remove the top cover by pulling the back end of the top cover gently upwards and outwards. You do not need to remove the locking pins.



Replacing the top cover

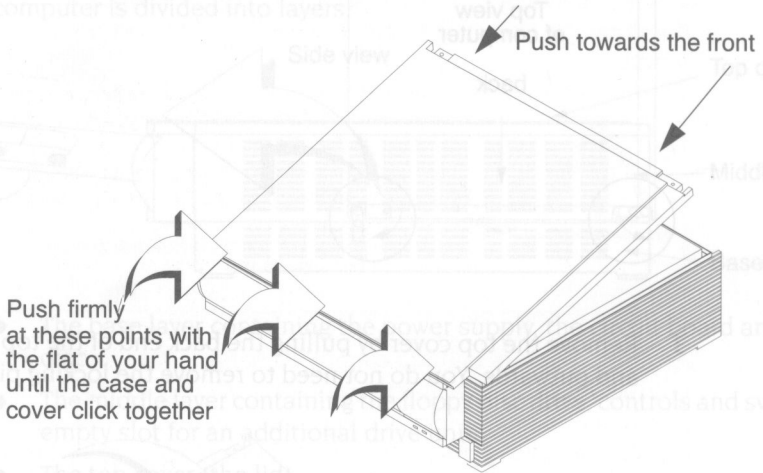
To replace the top cover:

1 Position the computer case as in the picture below with the front of the computer to your left.

2 Line up the front of the top cover with the front edge of the case.

3 With the palm of your left hand pushing on the join between the top and front of the computer, firmly push (with your right hand) the top cover forward so that it clicks into place.

You may need to press firmly all along the front join so that the lugs in the top cover click into the retaining sockets at the front.



4 The back of the top cover then easily comes down in place.

5 Turn the locking pins a quarter turn to the closed position.

Replace all of the connecting leads that you removed earlier. Lastly plug the power supply lead into the back of the computer and into the power supply outlet. For more information refer to the section entitled *Setting up the computer* on page 5.

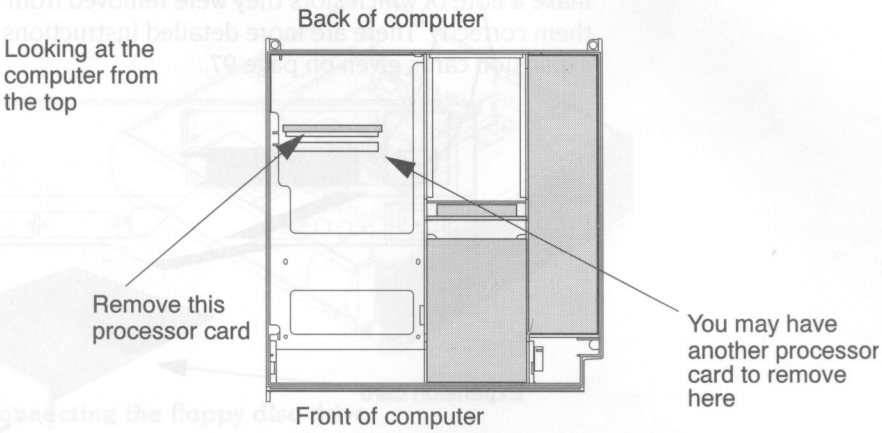
Removing the centre section

Once you have removed the top cover you can go on to remove the middle layer. Removing the middle layer will give you access to the circuit board.

This section assumes that the top cover has already been removed.

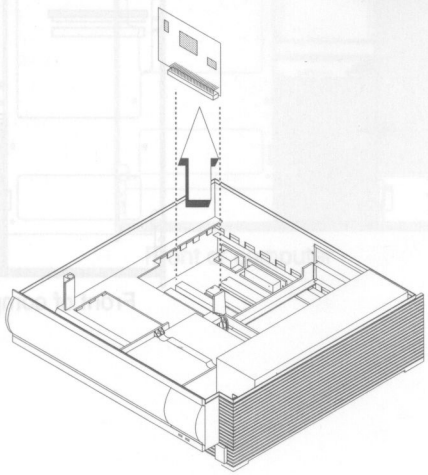
Removing the processor card

1 Identify where the processor card is in the case.


Back of computer
Looking at the computer from the top
Remove this processor card
You may have another processor card to remove here
Front of computer

1 Position the computer case as in the picture below with the front of the computer to your left.

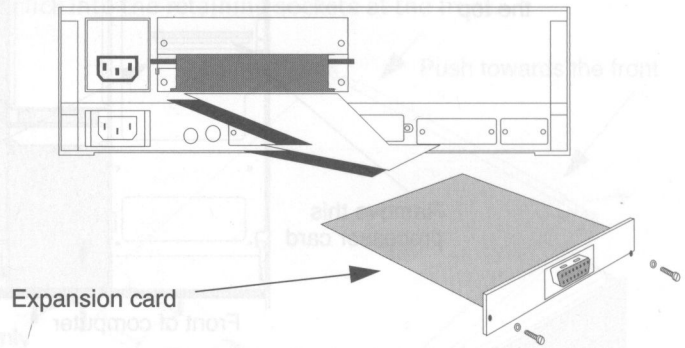
2 Grip the processor card (with both hands) firmly at the top of card and remove it by pulling (it may be stiff) vertically and evenly up and out of the case. Make sure that you don't squash any of the components on the card when you grip.



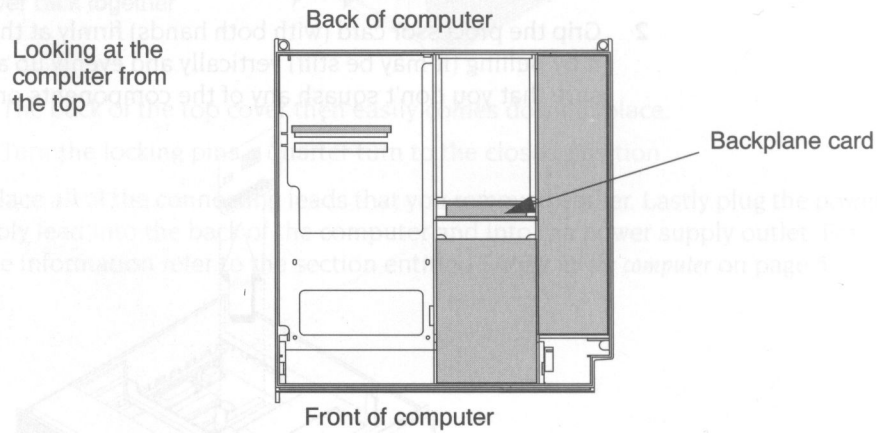
3 If you have a second processor card, remove it also. Make a note of which sockets the cards came out of, so that you can replace them in the correct positions.

Removing expansion cards and the backplane

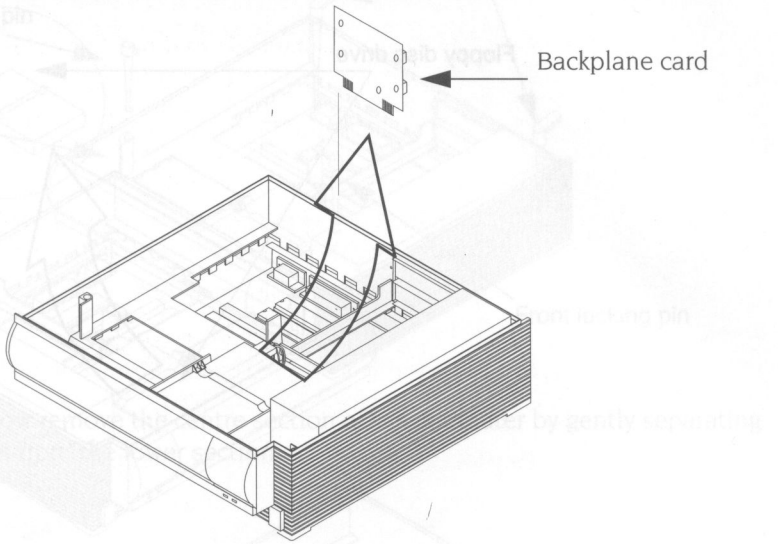
1 If you have expansion cards in your computer, you must now remove them. To do this you will need to face the back of the computer and unscrew them using a small flat-bladed screwdriver. If you have more than one expansion card, make a note of which slots they were removed from so that you can replace them correctly. There are more detailed instructions on how to fit and remove expansion cards given on page 97.



2 Identify where the backplane card is in the case.

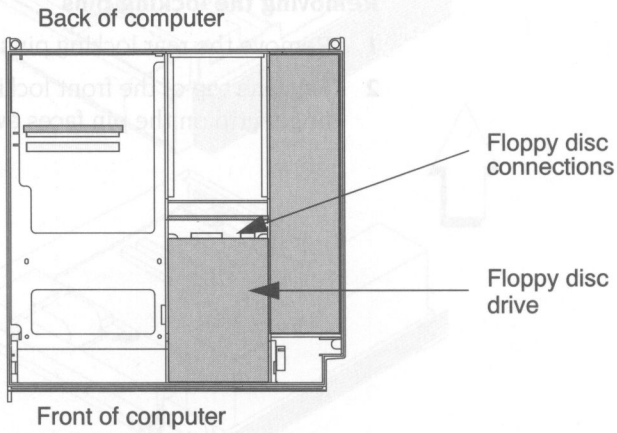


3 Remove the expansion card backplane by pulling it vertically and evenly up and out of the case. It is easiest to grip it under the lower card connector (under the grey plastic beam) and then pull up.

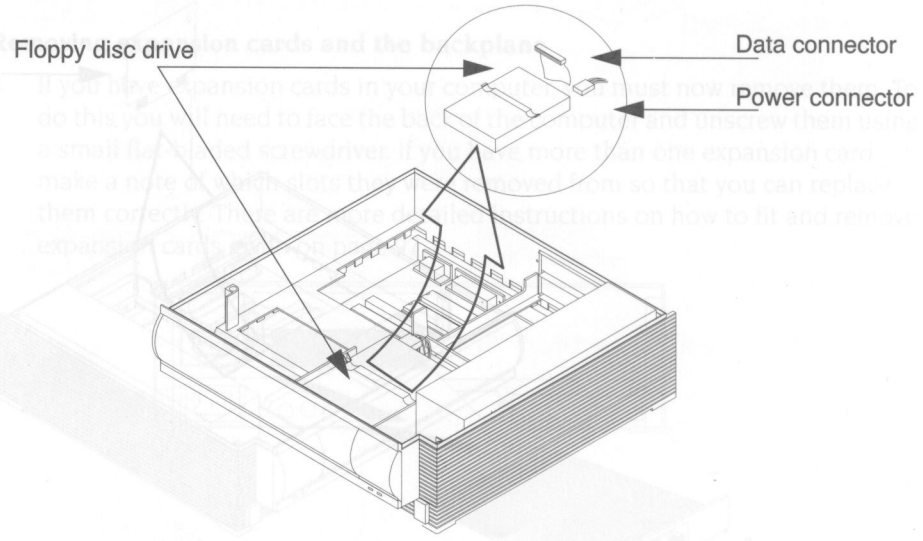


Disconnecting the floppy disc drive

1 Identify where the floppy disc drive is in the case.



2 Disconnect the power and data connections from the floppy disc drive by gently pulling them away from the floppy drive. This is easier if you are looking at the connectors from the back of the computer.



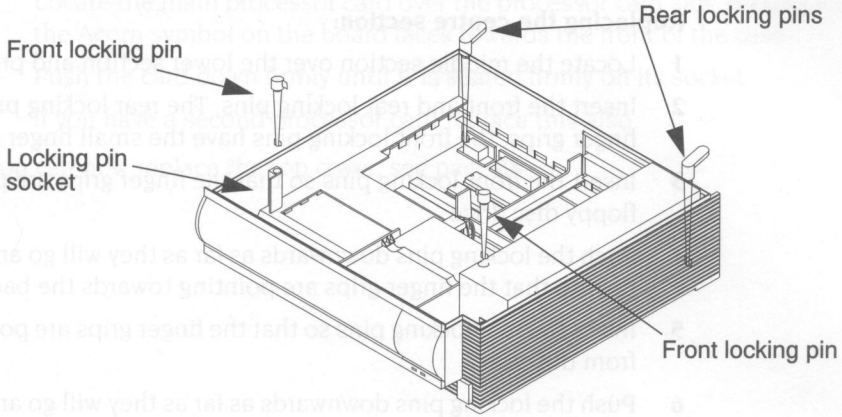
3 If you have installed a drive in the spare drive bay then remove the power and data connections from this drive also.

Removing the locking pins

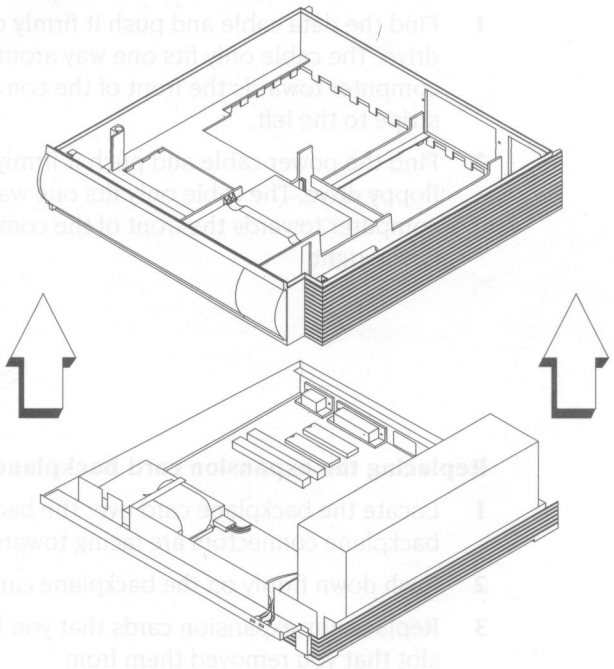
1 Remove the rear locking pins by pulling them straight up and out of the case.

2 Find the top of the front locking pins and turn them a quarter turn so that the finger grip on the pin faces away from the side of the case.

3 Remove the front locking pins by pulling them straight up and out of the case.



4 You can now remove the centre section of the computer by gently separating the middle from the lower section.



Replacing the centre section

Replacing the centre section:

1 Locate the middle section over the lower section and press down firmly.

2 Insert the front and rear locking pins. The rear locking pins have the large finger grips, the front locking pins have the small finger grips.

3 Insert the front locking pins so that the finger grips are pointing towards the floppy disc drive.

4 Push the locking pins downwards as far as they will go and turn them a quarter turn so that the finger grips are pointing towards the back of the computer.

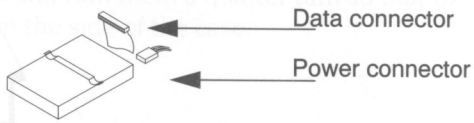
5 Insert the rear locking pins so that the finger grips are pointing outwards, away from the case.

6 Push the locking pins downwards as far as they will go and turn them a quarter turn so that they are flush with the back of the case.

Replacing the floppy drive connections

1 Find the data cable and push it firmly onto the data connector on the floppy drive. The cable only fits one way around. Looking from the back of the computer towards the front of the computer the data cable has the red edge stripe to the left.

2 Find the power cable and push it firmly onto the power connector on the floppy drive. The cable only fits one way around. Looking from the back of the computer towards the front of the computer the power cable has the red lead to the right.



Replacing the expansion card backplane and expansion cards

1 Locate the backplane card over the backplane card socket; make sure that the backplane connectors are facing towards the rear of the computer.

2 Push down firmly on the backplane card until it is seated firmly in its socket.

3 Replace any expansion cards that you have removed; put them into the same slot that you removed them from.

4 Replace and tighten the screws that fix the expansion cards to the case.

Replacing the processor card

1 Locate the main processor card over the processor card slot, making sure that the Acorn symbol on the board faces towards the front of the case.

2 Push the card down firmly until it is seated firmly on its socket.

3 If you have a second processor card replace this also.

You can now replace the top cover; see page 88.

Adding expansion cards

This chapter shows you how to add expansion cards to your system. Expansion cards let you expand the capabilities of your computer.

Introduction

Expansion cards enable you to add to the capabilities of your computer. They usually consist of two elements; a hardware card that fits into one of the expansion card slots at the back of the computer and one or more software applications and utilities that enable you to use and control your expansion card's features.

Please read the instructions in this chapter in conjunction with the instructions that accompany your expansion card; you may have to alter some links or settings on the card itself.

The network expansion card has to be installed with the cover removed and the case partially dismantled, see the chapter entitled *Opening the computer* on page 85 for instructions.

Before removing the top cover of the computer

1 switch off the computer

2 remove the power lead from the wall socket.

Do not reconnect the power lead to the wall socket until you have replaced the cover of the computer.

Do not make any adjustments inside the computer while the power lead is connected to the wall socket.

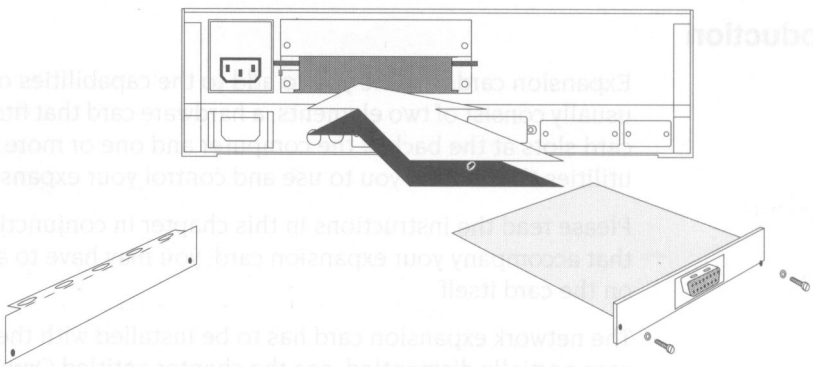
Acorn Computers Limited cannot accept any liability for damage done to the product during the installation of internal upgrades whether or not carried out in accordance with the instructions in this chapter. If you don't feel confident about carrying out any of the instructions in this chapter, ask your supplier to fit upgrades for you (a charge may be levied by the supplier for installing any upgrades; such a charge shall be entirely at the discretion of the supplier concerned).

How to add expansion cards

1 Shut down and switch off your computer and any peripherals connected to it following the instructions in *Switching off the computer* on page 65.

2 Remove the power lead from the wall socket.

3 Make sure that you have easy access to the expansion card area. You may have to move your computer. Make a note of any leads that you unplug so that you can plug them in again when you have finished.



4 Remove the top cover to give you better access to the expansion card area. You'll find out how to do this on page 87.

5 If you are installing your first expansion card, use the lower of the expansion card slots. Unscrew the metal expansion card blanking panel, keep the screws as you'll need them to secure your expansion card.

6 The lower expansion card slot has a set of guide runners over which you should slide the expansion card.

7 Press the expansion card home firmly so that the expansion card connector fits firmly into the socket on the backplane.

8 Screw the expansion card into case using the screws that secured the blanking panel.

9 Refer to the documentation that came with the expansion card to see if there are any further installation instructions. You may need to install some additional software onto your hard disc that controls the expansion card.

Internal expansion

This chapter shows you how to add expansion options to your computer. In this chapter you'll find instructions on how to install

- additional DRAM memory modules
- a network card.

Other hardware upgrades, such as those for the VRAM memory module and the second processor card, are supplied with their own installation instructions.

Before removing the top plastic cover of the computer

1 switch off the computer

2 remove the power lead from the wall socket.

Do not reconnect the power lead to the wall socket until you have replaced the cover of the computer.

Do not make any adjustments inside the computer while the power lead is connected to the wall socket.

Acorn Computers Limited cannot accept any liability for damage done to the product during the installation of internal upgrades whether or not carried out in accordance with the instructions in this chapter. If you don't feel confident about carrying out any of the instructions in this chapter, ask your supplier to fit upgrades for you (a charge may be levied by the supplier for installing any upgrades; such a charge shall be entirely at the discretion of the supplier concerned).

Additional DRAM memory modules

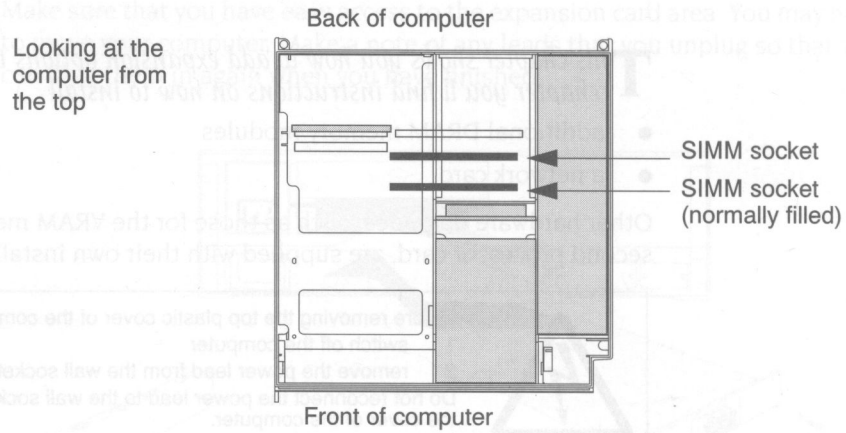
Your computer can have SIMMs (Single-In-Line Memory Modules) fitted to support DRAM (Dynamic RAM). Two SIMM banks are catered for, and any combination of 32 bit SIMMs is possible, with either of the DRAM sockets left empty. The operating system does, however, expect at least 2MB of DRAM to be available.

Before purchasing and fitting a SIMM, you should ensure that it agrees with the specifications listed in *Guidelines for choosing* SIMMs on page 104

Upgrading DRAM memory modules

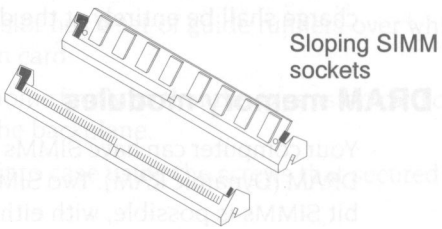
1 Follow the instructions on how to open the top cover of the computer given in *Opening the computer* on page 85.

2 Identify where the SIMM and socket is in the case.

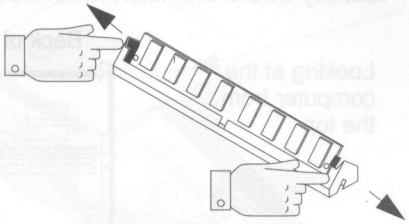


The computer can be fitted with one or two memory modules. If you are adding a single memory module add it to the empty slot (if there is one) otherwise you should remove one of the existing memory modules first. Always remove the smaller capacity memory module first.

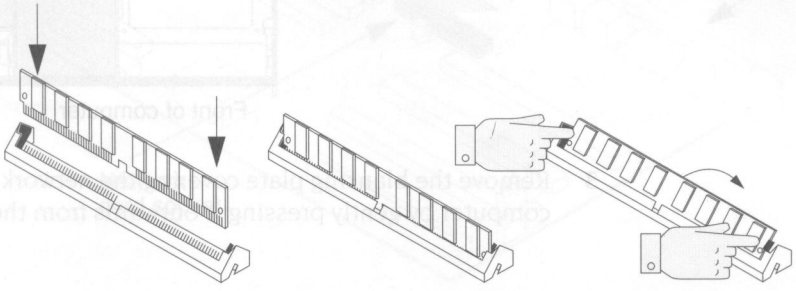
3 Position the computer so that you are looking at it from the back towards the front. The memory sockets are then sloping away from you on the left hand side of the computer.



4 If you are fitting a new memory module into a socket that is already occupied you should remove the existing memory module. Push sideways the small metal spring clips on each side of the module socket, at the same time gently pull the module towards you and it will click out of the socket.



5 Fit the new modules by pushing them almost vertically into the socket and then pushing them gently backwards. The spring clips will lock into place.



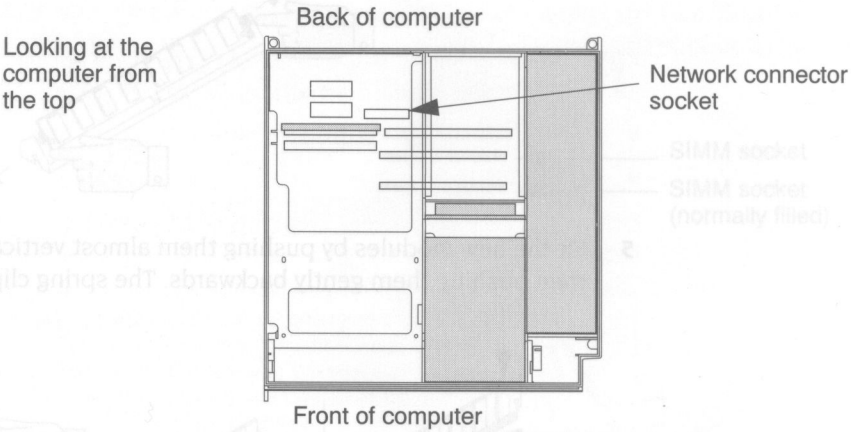
6 You have now finished upgrading the memory modules. Replace the middle layer and top layer of the case; the previous chapter shows you how to do this.

7 Test that the memory change has taken effect by checking the total memory size given by the Task manager.

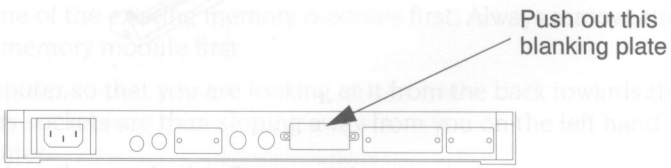
Adding a network card

1 Follow the instructions on how to open the computer given in *Opening the computer* on page 85. Remove both the top cover and the middle layer.

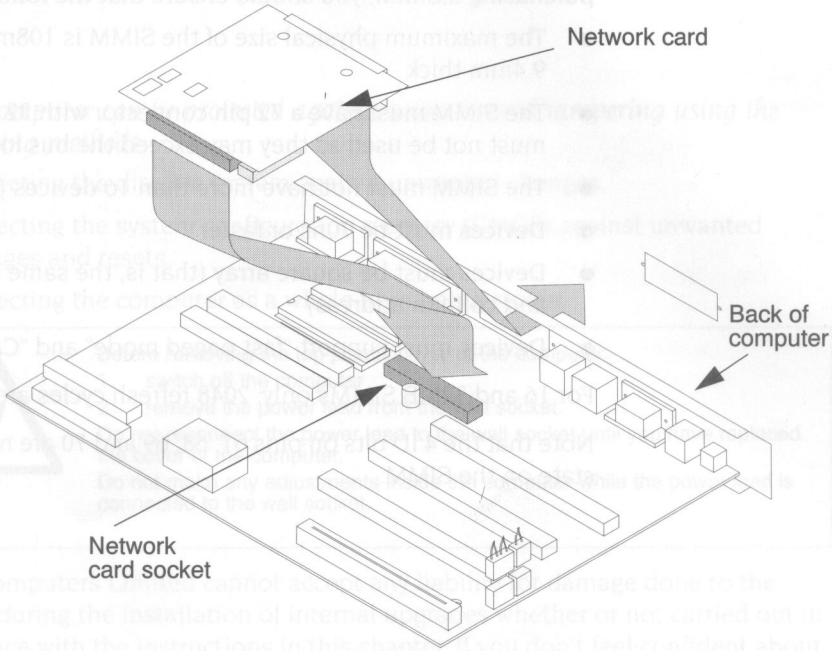
2 Identify where the network connector socket is in the case.



3 Remove the blanking plate covering the network connector socket on the computer by gently pressing it outwards from the inside of the case.



4 Align the Network card so that the external connector on the network card fits in the empty network connector socket in the back panel.



5 Push the card connector (underneath the network card) firmly into the Network connector socket on the main board.

6 Screw the connector into the back panel using the screws supplied.

7 Put the network connector label into the space provided on the rear panel above the connector.

8 You have now finished installing the Network card.

Replace the middle layer and top cover of the case. The chapter *Opening the computer* on page 85 shows you how to do this.

Guidelines for choosing SIMMs

There are some SIMMs available which cannot be fitted to your computer. Before purchasing a SIMM, you should ensure that the following specifications are met:

- The maximum physical size of the SIMM is 108mm long, 36.2mm wide and 9.4mm thick
- The SIMM must have a 72 pin connector with 32 bit data (36 bit DRAM devices must not be used as they may exceed the bus loading)
- The SIMM must not have more than 16 devices (DRAM chips) on board
- Devices must be 70ns or faster
- Devices must be square array (that is, the same number of bits for both row and column address)
- Devices must support "fast paged mode" and "CAS before RAS" refresh

For 16 and 32MB SIMMs only, 2048 refresh cycles are required.

Note that the 4 ID bits on pins 67, 68, 69 and 70 are not used, and so may be in any state on the SIMM.

Appendix A: Protecting your hard disc

Your computer can be protected against unauthorised tampering using the following methods:

- Protecting the disc file system against unwanted changes.
- Protecting the system configuration memory (CMOS) against unwanted changes and resets.
- Protecting the computer as a whole from being stolen.

Before removing the top plastic cover of the computer

1 switch off the computer

2 remove the power lead from the wall socket.

Do not reconnect the power lead to the wall socket until you have replaced the cover of the computer.

Do not make any adjustments inside the computer while the power lead is connected to the wall socket.

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Protecting the disc file system

The hard disc contents and system configuration can be protected from unauthorised tampering by using the special locking software incorporated into the **Lock** screen of the **!Boot** Configuration window. This locking software protects the hard disc against any changes to its contents.

The locking software also protects the computer's software configuration against unauthorised tampering.

Note: You can create a special directory (named **Public**) that can be used normally, even though the rest of the disc is locked.

There is more information about using the **Lock** screen in the section *Lock* in the RISC OS 3 *User Guide*.

Protecting the system configuration against unauthorised resets

Even if you have used Lock, it is still possible for a user to reset your computer back to the configuration supplied when it was delivered. A reset also loses your Lock configuration, leaving your filing system open to unauthorised access again. However, it is possible to protect your computer against a reset and so protect your filing system.

The Configuration protection connector

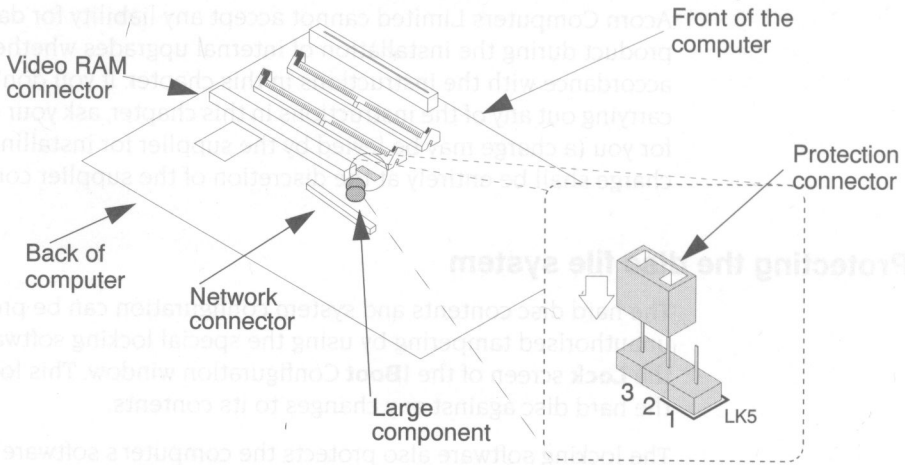
You can protect your computer against these types of resets by using the Configuration protection connector. When this connector is set correctly, resets cannot take place (the system just reboots). (There is more information about Reset options on page 114 of the RISC OS 3 *User Guide*.)

Setting the Configuration protection connector

1 Turn off your computer.

2 Remove the mains lead from the wall socket.

3 Locate the Configuration protection connector using this diagram. Looking from the back of the computer to the front; the connector is just to the right of the Video RAM connector. It is labelled LK5. The connector is quite small.



4 When the computer is delivered, the protection connector is over pins 1 and 2. This is the unprotected position.

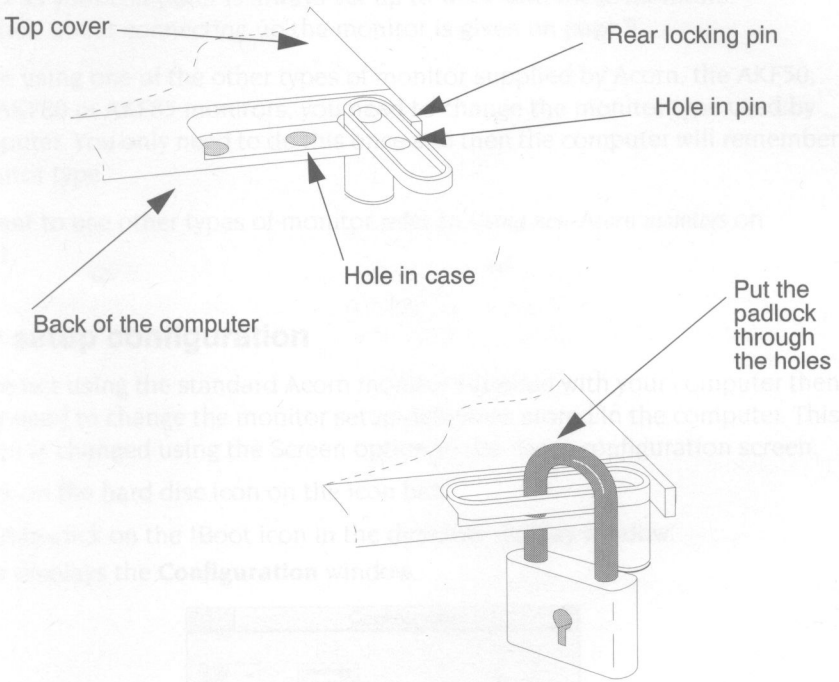
5 Remove the protection connector by gripping it between your fingers and pulling firmly upwards and off the pins.

6 Place the connector so that it is over pin 2 and pin 3 and then push the connector firmly down. This is the protected position.

The computer is now locked against configuration resets. You will now need to move this connector back again before you can reset the computer.

Securing the computer

Your computer has been specifically designed with two anchorage holes in the rear pins at the back of the computer. These can be used to secure the inside of the case against unauthorised access. The points can also be used with a chain to anchor the computer to a fixed item such as a desk.



Video RAM connector
Back of computer
Network connector
Large component
Front of the computer
Protection connector

Appendix B: Monitor configuration

This appendix tells you how to set up different types of monitor so that they operate correctly with your computer.

If you are using the Acorn AKF60 monitor you should not need to refer to this appendix as your computer is always set up to work with these monitors. Information about connecting up the monitor is given on page 5.

If you are using one of the other types of monitor supplied by Acorn, the AKF50, AKF52, AKF80 or AKF85 monitors, you need to change the monitor type used by the computer. You only need to do this once and then the computer will remember the monitor type.

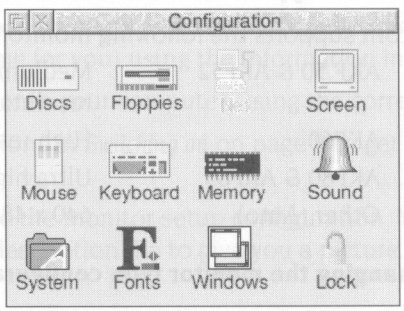
If you want to use other types of monitor refer to *Using non-Acorn monitors* on page 111.

Changing the monitor setup configuration

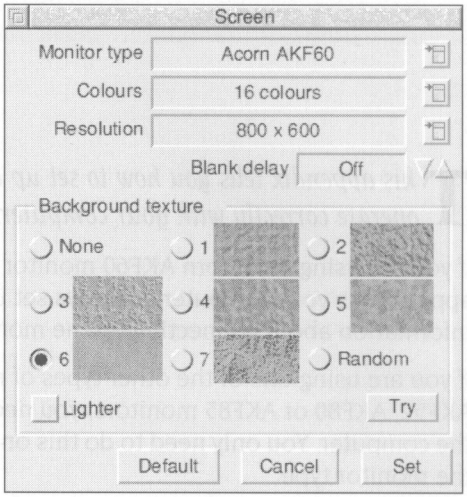
If you are not using the standard Acorn monitor supplied with your computer then you may need to change the monitor setup definition stored in the computer. This definition is changed using the Screen option in the !Boot configuration screen.

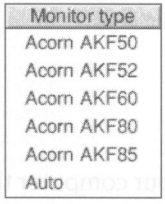
1 Click on the hard disc icon on the icon bar.

2 Double-click on the !Boot icon in the directory display window.
This displays the **Configuration** window.



3 Click on the **Screen** option in the Configuration window.





4 Click on the **Monitor type** menu icon to display the list of monitor types available.

5 Click on the option that corresponds to your monitor type. If you are still not sure which monitor type to use, choose **Auto** and then contact your dealer for more information.

6 You can now, if you wish, set the Resolution and Colours. For more information refer to the chapter *Setting the desktop configuration* in the RISC OS 3 *User Guide*.

7 Click on **Set**.

Acorn monitor types

Acorn supports the following monitors:

AKF 50 & AKF52	Medium resolution SVGA with TV standard resolution.
AKF60	High resolution SVGA.
AKF80 & AKF85	Ultra high resolution.
Other (Auto)	640 x 480 resolution only.

Changing the monitor type configuration

In the unlikely event that you choose a monitor type that is completely incompatible with your monitor type, you may find that you do not get a picture on the monitor.

To return to a screen combination that is usable, you must use **Delete power on** to reset all the CMOS bytes. This also has the effect of changing the Monitor type, Colours and Resolution to Auto. Monitor type **Auto** should be usable on all VGA types of monitor. Once you have a usable desktop you should select a Monitor type more suitable for your monitor.

1 Switch your computer off.

2 Hold down the Delete key and keep it held down while switching on the computer.
Keep it held down until the power-on sequence has completed.

3 The Desktop screen will now be displayed, go back to previous section *Changing the monitor setup configuration* and begin the configuration procedure again.

You may have to reset the hardware protection connector before this procedure works correctly; see *Protecting your hard disc* on page 105 for more information.

Using non-Acorn monitors

If you want to use a monitor that is not listed in the standard monitors menu list you should contact your supplier for advice. In general, the monitor must be capable of displaying at least 640 x 480dpi (dots per inch) – VGA standard.

Take the following steps to get a picture on your monitor:

1 Use the information in this chapter to check

- whether your monitor was supplied with the correct cable (if it wasn't, refer back to your supplier)
- whether your monitor needs an adaptor, and the right one was supplied
- whether the computer's monitor configuration is suited to your monitor.

2 If your monitor needs an adaptor that isn't supplied, make one (or ask your supplier to make one for you) using the information in *Cables and adaptors*.

3 Connect the monitor to your computer, using the correct cable.

4 Follow the instructions in *Switching on* on page 9 to get a picture on the monitor.

5 If necessary, change the monitor setup configuration. You can probably use the **Auto** monitor description file to give you a picture. Contact your supplier for advice.

Cables and adaptors

This section gives you the pinouts on standard cables supplied with monitors, and tells you how to make adaptors if they are required. The pinout of the video connector on the back of the computer is illustrated in the section entitled *Video* on page 118.

Although the cables and adaptors detailed in this chapter work correctly with the computer hardware, you still need to obtain the correct software monitor description file for your monitor; contact your supplier for more information.

Cable type A

This cable is supplied with most VGA, Super VGA and Multiscan monitors and is terminated at the computer end with a 15-way VGA style D-type plug.

The table below shows the typical pinout for the computer end of this type of cable. You can use this cable without modification.

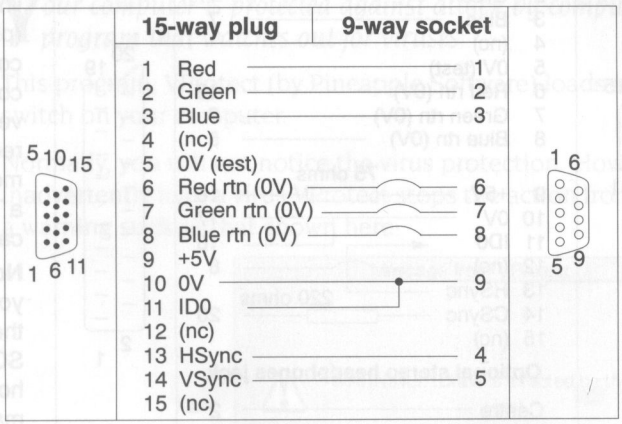
Pin	VGA and Multiscan	Multiscan
1	Red	Red
2	Green	Green
3	Blue	Blue
4	Not Connected	0V (See note 1)
5	0V (or test)	0V (or test)
6	Red Rtn (0V)	Red Rtn (0V)
7	Green Rtn (0V)	Green Rtn (0V)
8	Blue Rtn (0V)	Blue Rtn (0V)
9	Not Connected	Not Connected
10	0V	0V
11	0V (See note 1)	0V (See note 1)
12	Not Connected	Not Connected
13	HSync	HSync
14	VSync	VSync
15	Not Connected	Not Connected

Note 1: Normally linked to pin 10 (0V) in the cable or in the monitor.

Adaptor plugs

15-way to 9-way adaptor for separate sync monitors

The cable supplied with some Multiscan monitors is terminated at the computer end with a 9-way D-type plug. You need a standard 15-way plug to 9-way socket adaptor:

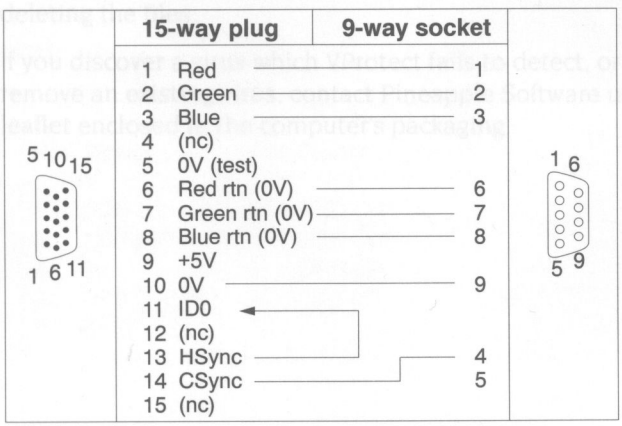


Note: The ID0 to 0V connection will make the computer generate separate sync signals.

Most Multiscan monitors are now being designed to be VGA-compatible and will work satisfactorily when driven with separate horizontal and vertical sync signals. The ID0 to 0V connection makes the computer generate separate sync signals.

15-way to 9-way adaptor for composite sync monitors

The cable supplied with some monitors is terminated at the computer end with a 9 pin D-type plug. You need a 15-way plug to 9-way socket adaptor:

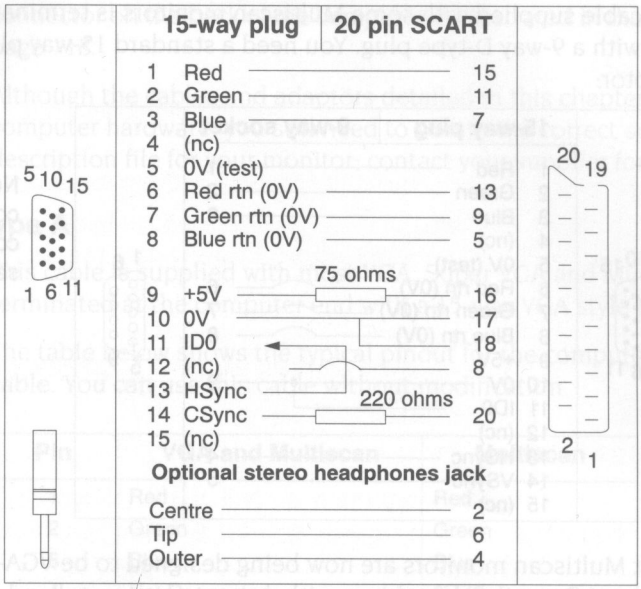


Note: HSync (pin 13) linked back into ID0 (pin 11) tells the computer that composite (rather than separate) sync is required, and that only modes compatible with a TV standard monitor can be displayed.

HSYNC to ID0 connection makes the computer generate a composite sync signal.

15-way to SCART input socket

You need to make this cable (if it's not supplied) for use with televisions and monitors using a SCART input socket:



Note 1: HSync (pin 13) linked back to ID0 (pin 11) tells the computer that composite (rather than vertical) sync is required, and that only modes compatible with a TV standard monitor can be displayed.

Note 2: On some TVs you might have to switch the TV manually into SCART mode (check how to do this in the TV's manual).

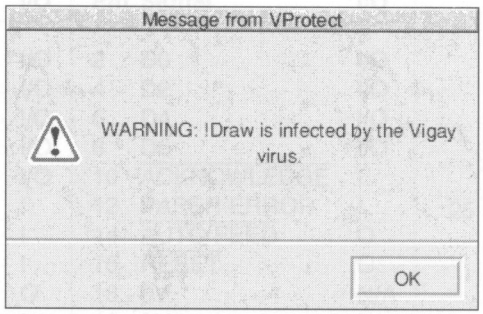
Connecting the stereo headphones jack will automatically cut off the sound to the computer's internal speaker.

Appendix C: Virus protection

Your computer is protected against attack by computer viruses by a special program that watches out for viruses.

This program, VProtect (by Pineapple Software) loads automatically whenever you switch on your computer.

Normally, you will not notice the virus protection. However, if you were about to inadvertently load a virus VProtect stops the action from proceeding and brings up a warning such as that shown here:



Warning: The virus will not enter your computer, but will still be on the floppy disc (or other media). Additional software is required to remove a virus; you should not attempt this yourself because there may be malicious side-effects triggered by deleting the files.

If you discover a virus which VProtect fails to detect, or need to obtain software to remove an existing virus, contact Pineapple Software using the details on the leaflet enclosed in the computer's packaging.

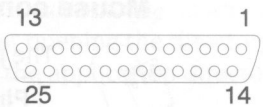
Appendix D: Connector pin-outs

This appendix gives the pin positions of most of the connectors on the back panel of the computer. These are intended to help you if you wish to construct your own cables.

Parallel port

The pins on the 25-way D-type socket on the back of the computer are as follows:

Pin	Signal	I/O	Pin	Signal	I/O
1	$\overline{\text{STROBE}}$	I/O	2	D0	I/O
3	D1	I/O	4	D2	I/O
5	D3	I/O	6	D4	I/O
7	D5	I/O	8	D6	I/O
9	D7	I/O	10	$\overline{\text{ACKNOWLEDGE}}$	I
11	BUSY	I	12	PAPER ERROR	I
13	SELECT	I	14	$\overline{\text{AUTO FEED}}$	O
15	$\overline{\text{ERROR}}$	I	16	$\overline{\text{RESET}}$	O
17	$\overline{\text{SELECT IN}}$	O	18	0V	N/A
19	0V	N/A	20	0V	N/A
21	0V	N/A	22	0V	N/A
23	0V	N/A	24	0V	N/A
25	0V	N/A			

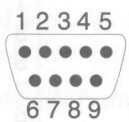


Serial port

RS232

The pins on the 9-way D-type plug on the back of the computer are as follows:

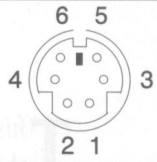
Pin	Signal	Pin	Signal
1	DCD I/P	2	RXD O/P
3	TXD O/P	4	DTR O/P
5	0V	6	DSR I/P
7	RTS O/P	8	CTS I/P
9	RI I/P		



Keyboard connector

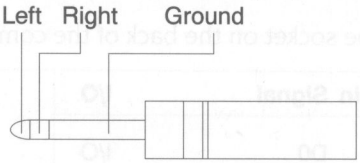
The pins on the mini-DIN socket on the back of the computer are wired as follows:

Pin	Signal	Pin	Signal
1	Kdata	2	No connection
3	0V	4	5V
5	Kclk	6	No connection



Headphones

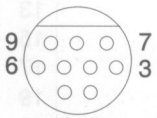
The 3.5mm stereo jack plug is wired as shown.



Mouse connector

The pins on the mini-DIN socket on the back of the computer are wired as follows:

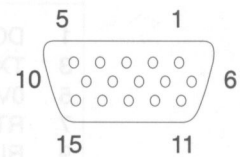
Pin	Signal	Pin	Signal
1	XREF	2	SWITCH 1
3	SWITCH 2	4	0V return
5	XDIR	6	5V supply
7	YREF	8	SWITCH 3
9	YDIR		



Video

The pins on the 15-way D-type socket are as follows:

Pin	Signal	Pin	Signal
1	RED	2	GREEN
3	BLUE	4	(n/c)
5	TEST (0V)	6	R return (0V)
7	G return (0V)	8	B return (0V)
9	+5V (800mA fuse)*	10	0V
11	ID0	12	(I/P / SCART slow switching O/P)
13	HSYNC	14	VSYNC/CSYNC
15	(n/c)		



* The continuous current should not exceed 75mA.

Glossary

This glossary defines any new terms that you may have come across in the guide. Terms in italics have their own definitions in this glossary.

ADFS — **A**dvanced **D**isc **F**iling **S**ystem (see the RISC OS 3 *User Guide* for more information).

adjust button — Righthand *mouse* button.

adjust size icon — *Icon* in the bottom righthand corner of some *windows*. *Drag* this to change the size of a window.

application — A program you use to perform tasks (such as word processing) or play games on the computer.

application directory — Similar to an ordinary *directory*, in that it contains other *files* or directories. Its name starts with an exclamation mark (!). *Double-clicking* on an application directory starts the *application* (rather than just opening the directory). Double-clicking while holding down the Shift key opens the application directory allowing you to view its contents.

application icon — Icon that appears on the *icon bar* when you start an application.

application window — The *window* or windows in which the application is displayed.

arrow icon — Icon that appears in a *dialogue box*. Click on it to increase or decrease a progressive series such as dates, or a sequence of numbers.

Apps icon — An *icon* that is always present on the lefthand side of the *icon bar*. *Clicking* on this will give you access to the main *applications* stored in the computer such as Draw and Paint.

auto-start — You can configure the computer so that particular applications will automatically start every time you switch on.

back icon — *Click* on this to send a *window* to the back of a pile of windows on the screen. Click on the *title bar* or the *Adjust size icon* to bring it to the front again.

backplane — A small printed circuit board (PCB) sticking out vertically from the main PCB. You plug *expansion cards* into the backplane.

backup — A copy of an important *file* (or *directory*, or even a whole disc).

bit — A unit of storage - a binary digit. One is circuit on, zero is circuit off.

byte — A unit of storage, which consists of eight bits (ones or zeros) of information.

Caps Lock key — Key at the lefthand side of the *keyboard*. When the Caps Lock light is ON, anything you type into the computer will be in upper case.

caret — A vertical bar in a *file* or *writable menu box*. Text you type in appears to the left of the caret.

clicking — Pressing and releasing one of the *mouse* buttons once (normally the Select button, unless otherwise stated).

clicking on — Pointing at with the mouse pointer and clicking Select.

close icon — Click *Select* on this to close a *window* or *directory display*. Click *Adjust* to close the window and simultaneously open its *parent*. Press Shift and click Select on this to close a window and leave its *icon* on the *Pinboard* (Double-click on the *Pinboard* icon to open it again). Press Shift Adjust to open the parent without closing the window.

computer control keys — These include the following keys: Tab, Ctrl, Shift, CapsLock, Alt, *Return*, the arrow keys, *Delete*, Insert, Home, End, Page Up and Page Down.

default — A standard setting or option, which the computer uses unless you tell it to do something else.

Delete key — The function of this key depends on what *application* you are using. For instance, in Edit (or a *writable menu box*) press this key to delete a character to the left of the *caret*. In Draw, press this key to delete a selected object.

desktop — Area of the screen display where you run *applications*, open *windows* and so on.

destination disc — When making a *backup*, you copy information **from** an original *source* disc **to** a blank, formatted destination disc.

devices and device icons — Devices really means storage devices – places where information (*files*, *directories* or programs) is kept. *Click* on the device icon (on the lefthand side of the *icon bar*) to see what is stored on the associated device.

dialogue box — A window in which you can set multiple options and supply file names in *writable menu options* before the computer performs a task or operation.

directory — Storage area – like a folder – in which you can keep *files* or *subdirectories*.

directory display — *Window* that displays the contents of a *directory* or storage *device*. *Double-click* on a directory to see its directory display.

disc — See *floppy disc*.

disc eject button — The small button to the right of the floppy disc drive used to remove a disc from the disc drive. Make sure the *drive indicator light* is out before you press this to *eject* a *floppy disc*.

double-clicking — Pressing and releasing the *Select* or *Adjust* button twice in quick succession.

double-click arrow — When you double-click on an object, the *pointer* will change to a double-click arrow just after the first click. You have to make the second click before the pointer reverts to its normal shape.

double density floppy discs — Floppy discs capable of holding about 800KB of information when formatted.

drag — Press and hold down the *Select* or *Adjust* button and move the *mouse*, whilst the *pointer* is over the object you want to drag.

drive indicator light — This is an LED that lights when the disc drive is being used by the computer. There is one for the hard disc drive and one for the floppy drive.

Econet — This is a means of connecting two or more computers together so that they can communicate with each other and share information. It is a type of Local Area Network (LAN) produced by Acorn. Contact your supplier for details.

eject — Press the *disc eject button* to eject a *floppy disc*.

Ethernet — Another type of LAN, developed by Xerox Corporation.

expansion card — An extra circuit board fitted to your computer that will make it more versatile and powerful. Expansion cards are available from your supplier.

file — A collection of information bundled together and given a name to identify it. For instance, a letter written on a word processor, a program, a *palette* definition.

file access — Controls who else can look at or change any of your *files* if your computer is connected to a network (like *Econet* or *Ethernet*).

file locks — Prohibit other users on a network from looking at or changing your files, and prevent you from accidentally deleting files you have protected.

Filer menu — *Menu* displayed when you click Menu over a directory display.

filing system — (e.g. ADFS) – A logical and structured way of storing and manipulating *files*. See the RISC OS 3 *User Guide* for more information.

floppy disc — Removable disc for storing information. Your computer uses 3.5 inch floppy discs.

font — A typeface that the computer uses (e.g. Homerton, Trinity). Some are permanently stored in the computer's ROM, and some are in !Fonts. You can buy extra fonts.

format — Formatting a disc prepares it to receive information from the computer.

function keys — Set of keys along the top of the keyboard. What they do depends on which *application* you are using.

hard disc — A storage device fitted permanently inside the computer. Can hold much more information than a *floppy disc*.

high density floppy disc — Floppy disc capable of holding 1600KB of information when formatted under ADFS (1440KB under MSDOS).

icon bar — Strip along the lower edge of the *desktop* showing *icons* for *devices* and *applications* currently accessible from the computer's memory.

icons — Small pictures representing *applications*, *devices*, *files*, *directories* and so on.

input focus — When the input focus is on a particular file's *window*, you can alter that file (type in text, add graphics etc). The title bar and other icons on the window will change colour.

keyboard — Built in or attached to computer by a cable. You use it to input information to the computer.

keyboard map — The layout of the keys on the keyboard. This includes all the special and accented characters. Read the chapter *Using the keyboard* for more information.

kilobyte (KB) — Unit of size relating to storage space in a computer. There are 2^{10} (1024) *bytes* in a kilobyte. A formatted high density *floppy disc* can hold about 1600KB. A *hard disc* can hold much more.

LED — **L**ight **E**mitting **D**iode. The lights on the front of the computer are LEDs

letterbox — A type of *screen mode*, much wider than it is high. Used to display old type screen modes for backward compatibility purposes.

local area network (LAN) — A general term for a network like Econet or Ethernet.

megabyte (MB) — There are 2^{10} (1024) *kilobytes* in a megabyte.

memory — The computer's information storage areas (see also RAM). If you try to run too many applications at once, you may run out of computer memory and have to remove some of the applications you are not using.

menu — List of actions you can choose from to perform on (or within) *files*, *directories*, *applications* and so on.

Menu button — Middle *mouse* button. *Click* it to display a *menu*.

menu option — See *menu*.

modem — Short for **Mo**dulator-**Dem**odulator. A device that allows the computer to send and receive electronic signals via the telephone system.

monitor — Screen unit (like a TV set) used to display communications from the computer. Monitors can be colour or monochrome (black and white). Also known as a Visual Display Unit (VDU).

MonitorType — A computer variable that determines which *screen modes* your *monitor* can display.

mouse — Small plastic box with three buttons on top and a cable attaching it to the computer. Hold it in your right hand, if you're right handed. Moving it moves the pointer on the screen.

move — Press Shift while *dragging* a file to move (rather than just copy) a file from one *directory* to another.

numeric keypad — Group of keys on the righthand end of the *keyboard*. When the NumLock key is on, the keys enter the numbers marked on them. With NumLock off, they may behave differently, depending on the *application*.

operating system — Actions you tell the computer to perform via the *desktop* are translated by the operating system into instructions that the computer can understand.

option icon — Icon that appears in a *dialogue box*. Click on it to toggle (switch) an option on or off.

parent directory — A parent *directory* contains *subdirectories* and *files*. The files and subdirectories you see in a *directory display* are "children" of this parent directory.

peripheral — An item of hardware, e.g. a *printer, monitor* or *modem*.

Pinboard — *Application* that makes use of the blank areas of the *desktop*. You can *drag icons* onto the desktop itself and they will 'stick' there (still in the computer's memory, just not open on the desktop).

pointer — Arrow displayed on the *desktop*. It moves when you move the mouse. Use it to *move*, change or select items on the desktop.

pop-up menu icon — Icon that appears in a *dialogue box*. Click on it to display a submenu.

printer — *Peripheral* which prints *files* or documents onto paper.

printer manager — Application that oversees the printing process.

prompt — Signifies that you need to type in a command or supply information (e.g. the * prompt that appears when you press F12).

quit — To close a *file* or *application*, and remove its *windows* from the screen.

radio icon — One of a group of buttons that appears in a *dialogue box*, only one of which may be selected at once.

RAM — Random Access Memory – part of the computer information storage system which is accessible for storing or retrieving information without using *discs*. Information in RAM is lost when the computer is switched off.

resources — The means with which your computer runs programs and *applications*.

Return key — Key on the *keyboard* that you press to signify the end of an instruction to the computer (e.g. when you've finished typing in a *file* name in a *writable menu box*) or to start a new line in an Edit file.

RISC OS — Stands for: **R**educed **I**nstruction **S**et **C**omputer **O**perating **S**ystem. See also *operating system*.

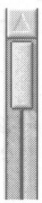
ROM — Read Only Memory – similar to RAM, but ROM doesn't lose its contents when you switch the computer off. The *operating system* and several applications and fonts are permanently present in ROM.

root directory ($) — The top-level *directory* in a filing system (all other *files*, *subdirectories* etc are contained in it).

save — Keep a permanent copy of a *file* in its current state (including any changes made since the last save).

SCART — Type of connector used to connect some types of monitor or TV to the computer. Gives better picture and sound quality than using an ordinary coaxial aerial cable.

screen mode — Governs the physical appearance of the *desktop* on your *monitor*.



scroll arrows — Arrows at either end of the *scroll bars* of a *window* that is not large enough to show all of a *file*.

scroll bar — Shaded bar along the righthand (and sometimes lower) edge of a *window*.

scrolling — Moving around a large *file* using the *scroll bars* and *scroll arrows*.

Select button — Lefthand *mouse* button. Used to select items, choose *menu* options, *drag icons*.

self-tests — A series of tests performed by the computer when you switch on.

Shutdown — Menu option on the *task manager icon bar menu*. Choose this before you switch off the computer – it ensures that the computer shuts down 'gracefully'.

slider — Box within *scroll bar*. *Drag* it to move around a *file*.

source disc — See *destination disc*.

storage device — See *devices*.

subdirectory — *Directory* in a *parent* directory.

submenu — *Menu* accessed by moving the *pointer* over an arrow on a main menu.

system application — Contains some of the *resources* that are common to all *applications*.

system disc — Floppy disc containing *system applications*.

Task manager — Icon on righthand side of *icon bar*. Use it to control how the computer uses its memory.

title bar — Area of a *window* in which the name of the *file*, *application* or *directory* appears.

toggle size icon — *Icon* in the top righthand corner of a *window*. *Clicking* on this toggles between full size and the last size at which a window was displayed.

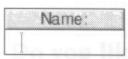
toggling — Switching alternately between two states, usually by clicking Select (e.g. clicking repeatedly on the Toggle size icon of a window, or an option icon in a dialogue box).

track — An area defined on a disc when you *format* it, on which the computer stores data.

typewriter keys — Block of keys on the *keyboard* which resemble those on a typewriter.

window — Area of the screen designated for a particular activity or display – e.g. an Edit window (used to create a text file) or a *directory display*.

work disc — Floppy disc containing an application, !Scrap and a work directory.



writable menu option — A *submenu* option or part of a larger *dialogue box*. Either it already has a *caret* in it, or the *pointer* changes to a caret when it is over the option, indicating that you need to click in it and type in something (e.g. a file name).

write-protect — To lock a *floppy disc* so that the information on it cannot be changed.

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